PROGRESSIVE ARCHITECTURE

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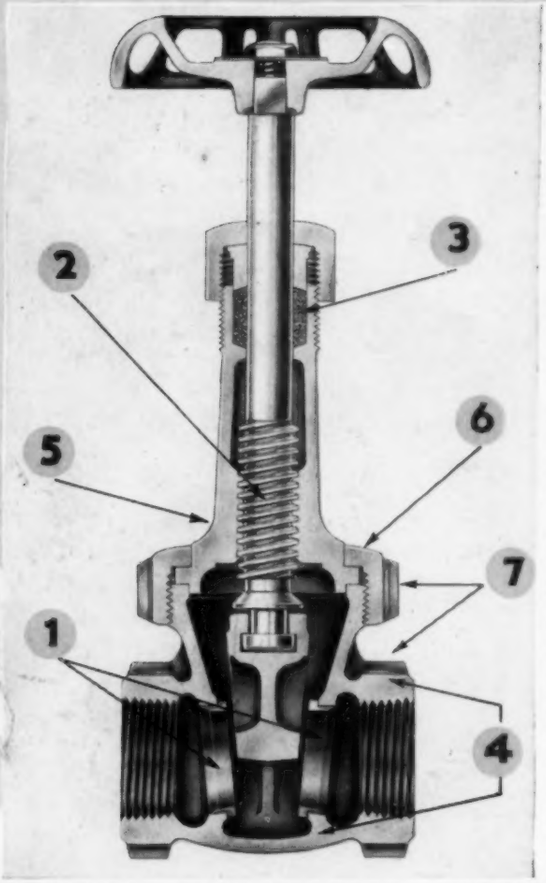
AUGUST △ △ △ △ 1947

IT'S NEW . . . IT'S FAR AHEAD — IN DESIGN — IN DURABILITY

JENKINS FIG. 270-U BRONZE GATE VALVE



1. "MONEL" SEAT RINGS EXPANDED IN BODY The seat rings, expanded into place in the body, are equivalent to integral faces. The "MONEL" metal used is about 2½ times the hardness of valve body bronze — provides exceptional resistance to erosion and corrosion.

2. LARGE SPINDLE THREADS LAST LONGER The threads on the traveling spindle are exceptionally long and large in diameter, which reduces wear to a minimum and insures easy operation. Spindle metal is hard, tough manganese bronze.

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4. LIBERAL BODY DIMENSIONS ADD STRENGTH Made of 35,000 lb. tensile strength cast bronze — has full length of pipe threads and liberal clearance between threaded ends and diaphragm wall. Union assembly reinforces and strengthens body neck.

5. EXCEPTIONALLY RUGGED BONNET Projection on bottom assures snug fit into neck of body. Large diameter Acme threads, with long bearing, assure improved wear resistance. Machined bevel on underside matches beveled shoulder on spindle for back-seating under pressure and protecting spindle threads when valve is wide open.

6. HEAVY BONNET RING Union Bonnet joint withstands exceptionally high hydraulic pressures. Liberal thread engagement assures assembly that can be made tight and kept tight after repeated disassembly.

7. BODY AND BONNET RING LUGS Rugged sturdy lugs of novel design on body ends and bonnet ring permit repeated application of conventional wrenches.

AGAIN JENKINS PRACTICAL ENGINEERING SETS THE STANDARD FOR VALVE ECONOMY

• *IF ANY PART of the seating combination is to eventually need replacement, why not have it the most accessible part—the wedge rather than the seat? It's easier, quicker, cheaper to slip on a new wedge, than to install a new body!*

That's the principle on which Jenkins Engineers designed the new Fig. 270-U Bronze Gate Valve, with a high-quality bronze wedge seating against MONEL seat rings expanded in the body. With this sensible design, the wear affects only the most accessible part—the bronze wedge —which can be replaced by simply slipping it off the stem and slipping on a new one. Prolonged tests, in toughest service, prove it the best seating combination to beat wear, reduce care.

This new, better Fig. 270-U will give you unequalled economy in any service requiring a 200 lb. pressure Bronze Gate, and especially under severe conditions, such as in oil refineries, dye houses, chemical, food, and rubber plants.

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ROGRESSIVE
RCHITECTURE
ENCIL POINTS]

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MANY TRANSLATIONS

The quick assumption made by most laymen and too many architects —that all "modern" architecture is the same, self-consciously stark and bare, expressing a new "style"—should be further dispelled by this issue of PROGRESSIVE ARCHITECTURE. As we have said editorially before, we are interested in a critical analysis of progress, not in pushing any brand of stylishness.

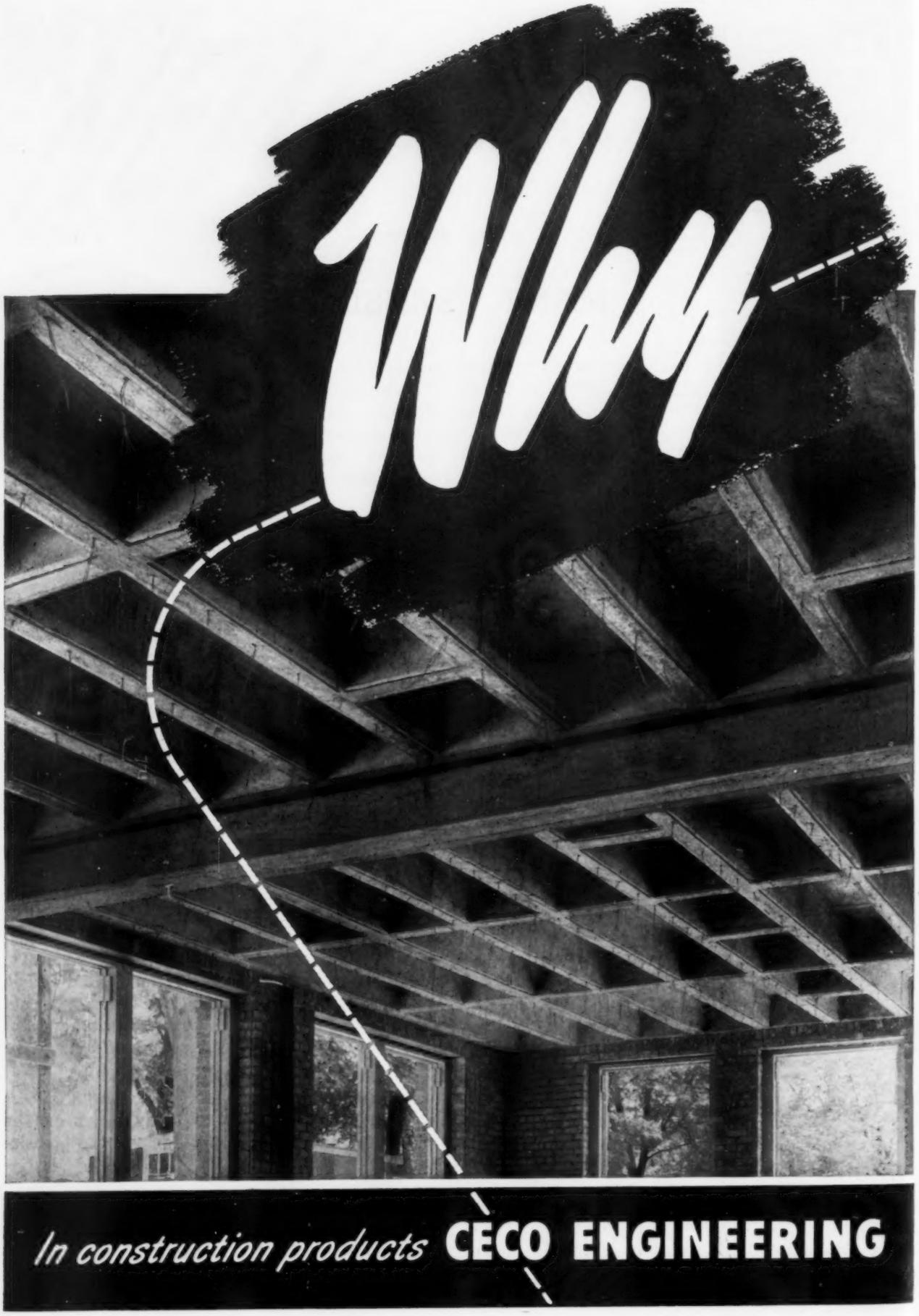
Milton Kirchman's article dissecting the work of the "International" school (a school, incidentally, which no one admits belonging to) will probably displease some people. It will be a surprise to some readers and a disappointment to others to have the "anti-rational" aspects of this architecture pointed out, and its esthetic and emotional basis defined.

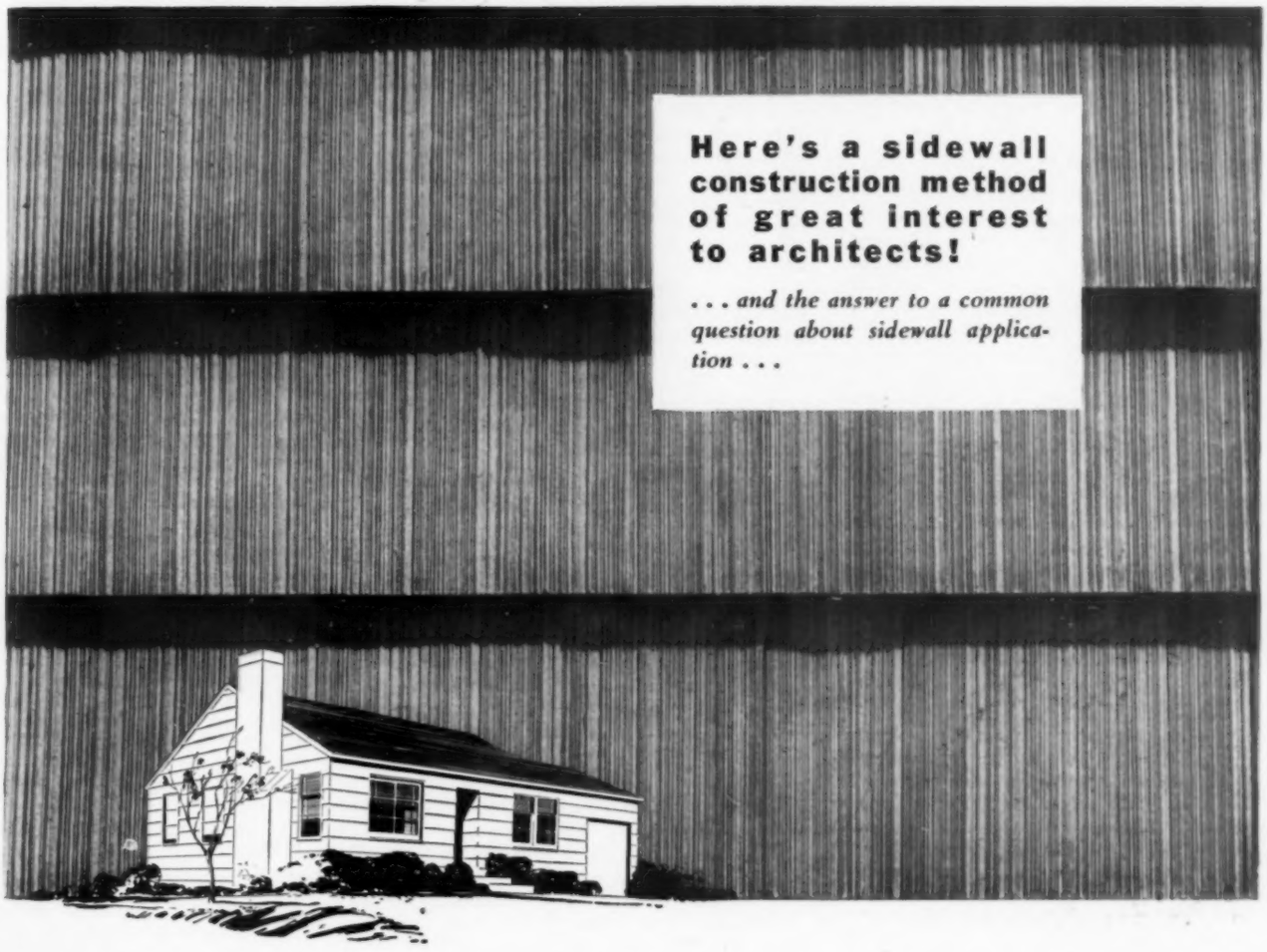
What we should like the issue to prove further is that this is not the only influence on a native contemporary design. For example, the two museums from Sweden typify another modern approach which has never had much relation to what was done in the Bauhaus. Highly individual, as all recent Scandinavian work has been, it does not follow the esthetic that Kirchman analyzes, in the direction, for instance, of recent Brasilian designs.

Then what "style" would include the two churches in this issue? Different from one another, they show various influences, but above all they each have a character quite different from either of the groups we have mentioned. They study structural possibilities and use them to produce an emotional impact which is contemporary, fitting—and indigenous. This is architecture of the United States emerging. Again, the lusty, frank designs for two new California airport buildings have a lack of concern with pure esthetics, and yet a very real human scale and a "come and make use of us" quality.

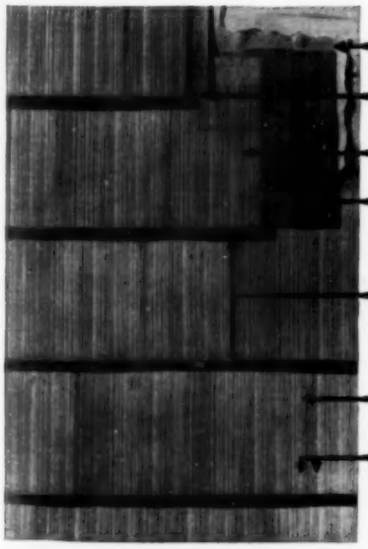
No one can yet speak, with any meaning, of a "modern style." Modernism is a way of thinking in terms of today which can be translated into many architectural expressions. Some of the translations begin to read very well.

The Editors


In construction products CECO ENGINEERING


Here's a sidewall construction method of great interest to architects!
. . . and the answer to a common question about sidewall application . . .

What do you know about *double-coursing?*



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- Outer course is laid ½" lower than the under (concealed) layer, providing attractive thick appearance and heavy shadow line.
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VIEWS

NO LONGER NEEDS US

Dear Editor: I am sorry to say this old office of Harding & Seaver is about closed up, after forty years of very enjoyable and satisfactory architectural work, the kind of work that seems now to be stopped by business conditions and not by the failure of the building public to want the sort of work we do and did. You can readily gather this office is of the old school, not at all of the sort you and the other magazines are pushing so hard with doubtful success.

I do not like your magazine. I used to for years take *Pencil Points*, and have folders of detached plates in my files. I took five magazines and have come down to yours, and now discontinue that. I recently asked a younger architect in Connecticut if I would do well to change to the *Forum* and he said it was just as bad as PROGRESSIVE ARCHITECTURE, but did admit he took both at present.

Enough said: can't you see the building public, after these war years, does not want the stuff you have been pushing? Look at yesterday's *New York Times* showing big new apartments in New Jersey in Georgian style, and many advertisements along the same, and only one apartment in New York City in a narrow street understandably "modern."

So far I have never had a client who asked for any "modern" design, and do not expect to, for the people I know are refined and have good taste.

HENRY M. SEAVER
Harding & Seaver
Pittsfield, Mass.

DECORATOR'S PLEA

Dear Editor: So many times in recent years friends of mine, after having leafed through a copy of PROGRESSIVE ARCHITECTURE, have commented on the utter coldness of home interiors. That meant another would-be devotee of contemporary design was lost forever.

After an architect does a perfectly wonderful design and planning job on a building, the interior furnishings belie all that the building itself implies. Whatever the reason for this apparent slip-up, certainly the interiors do no justice to the building. It is so rare indeed to see intelligent interiors, period or contemporary, in the pictures of recently built homes that I wonder if architects consider the finished result.

As a decorator and the head of the design section of the "Career Builders" placement agency, I put in a plea to architects to seek the services of an accomplished decorator who can do an intelligent job in a business-like manner from the planning stage.

FRED B. SHRALLOW
New York, N. Y.

MORE AND BIGGER GLASS

Dear Editor: We have been advised by local glass distributors that they are unable to glaze metal casement windows in which the non-structural members have been removed with DSA or DSB due to the fact that the greater percentage of their glass allotment is received pre-cut for small lights. Apparently these small lights are the result of recommendations of Metal Window Institute. We have written the Metal Window Institute, Producers' Council, and Libbey-Owens-Ford Glass Company protesting this unnecessary shortage and adherence to past architectural expression. We solicit the cooperation and help of you and PROGRESSIVE ARCHITECTURE in correcting this weird and unnecessary condition.

CHARLES GRANGER
Austin, Tex.

BEHIND THE SUN FINS

Dear Editor: I have lived and practiced architecture in Brasil before the present boom. When we talk of Brasilian architecture today, we think of the charming fenestration of some recent works. But when one lives there—the story is different.

Analyze the floor plan of "Apartment House, Copacabana, Rio de Janeiro," in your April issue. The kitchen is an inside room, without exterior window or ventilation. If any, it ventilates into the living room. (Ed. Note: Onto the open service porch, as shown on plan.) Also, note the bathroom on a 2' x 4' light-well through 14 floors.

Analyze the "Public School, Niteroi." A 6-foot corridor for eight classrooms and this on the third floor 110 feet away from the only stairway.

If this is the best, how about the rest? I have lived in so-called modern hotels with inside bedrooms ventilated into a dark corridor. I have eaten in a prominent restaurant with washrooms beyond the kitchen and dishwashing and have been in an expensive office building where in case of emergency one had to change stairways in three different locations in order to reach the street from the sixth floor.

Le Corbusier left his ground-floor columns behind—everything is perched up—it is *the thing* to do. The rest, however, is far away from being functional or sanitary. After all, the Brasilian lives for the show and would rather spend a small fortune for an ultra entrance than for an up-to-date air conditioning system.

Of course, of all South American cities the curse is the traditional narrow lot and loose ordinances. But even on a multiple lot the floor plan in most cases is a jumble of confused functions where utility is always sacrificed for fancifulness.

MARTIN DEVY DE DUBOVAY
Los Angeles, Calif.

COVER A RELIEF

Dear Editor: Congratulations on your cover make-up. It is attractive and at the same time useful—a relief from the screwball antics of some of your extreme competitors.

CHARLES C. PLATT
New York, N. Y.

FILLS A BIG GAP

Dear Editor: I have noted in your June issue the review of *Specification for the Design of Light Gage Steel Structural Members*, which was published in April, 1946, by the American Iron and Steel Institute.

I would like to point out that this modest booklet of 39 pages constitutes a minor revolution and a major advance in the building field, and deserves therefore some attention.

The *Specification* accomplishes two important tasks:

1. It fills a big gap in the building codes and specifications, giving workable design standards for the otherwise complex design procedures of sheet steel structures. This has special significance for the designers and manufacturers of prefabricated steel houses. Up to the appearance of this *Specification*, the field of light gage sheet steel members was terra incognita for most architects, engineers, and, last but not least, building code officials.

2. It introduces the truly revolutionary concept that structural elements *can be considered as safe even though the applied loads cause noticeable distortions* on free edges of the steel members. This, of course, is revolutionary only to the structural steel designer, but is well known to the stress analyst of aeronautical structures. It is, indeed, an encouraging sign that this has been "officially" noticed by the building industry.

It is unfortunate that both the *Building Code Requirements for New Dwelling Construction (BMS 107)*, recommended by the National Housing Agency in January, 1947, and the *Recommended Revision of Prefabricated Homes, Commercial Standard CS125-45* (May 1947) by the Department of Commerce, have completely ignored the A.I.S.I. Light Gage Steel Specifications. Both of these codes are supposedly quite progressive.

I believe that the readers of your magazine should profit through the application of this latest A.I.S.I. Specification.

PAUL WEIDLINGER
Washington, D. C.

NOT A SCRAPBOOK

Dear Editor: I have been a subscriber to your magazine for some time, and find it very helpful. One step forward is your new cover, giving a ready reference to some of the most important subjects between its covers and also the blank margin which allows for additional information one may jot down for ready reference.

(Continued on page 10)

ADVANTAGES OF RAYMOND CONCRETE PILES · NO. 2

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VIEWS

(Continued from page 8)

I am a designer and builder of stores, including fronts and fixtures. However, I am not limited to this field alone as I have built schools, theatres, nightclubs, restaurants, etc., in various locations in New York, Florida, and California. One outstanding store designed and built by me is the Russell McPhail chocolate store at Syracuse, New York. Another is the Lincoln candy & toy shop in the Hotel Lincoln in New York.

Now getting down to a brickbat for your magazine of which I can enumerate many, is, why don't you print a separate loose page for the listing of "Manufacturers' Literature" wanted instead of having to cut up a magazine, and having it look like a scrapbook instead of what it is intended to be (a ready reference book). This also will help the busy architect and designer who does not want to mutilate his magazine to get the information by just jotting down the items wanted and slipping same in an envelope; or better still, if it were on a card he would only have to apply a stamp and send it on to you. I have at various times in the past written for literature mentioned in your "Manufacturers' Literature" list but received only about half the items requested. I do not request literature unless I believe it will be helpful.

FRED D. WEIERTER
Bay Shore, N. Y.

IMPLEMENT OF ARCHITECTURE

The standardized chassis of Schlage locks permits the boring of all doors at once for economy of installation. Schlage standardization also simplifies the architect's specification job as it allows locks to be reversed or interchanged if plans change during construction.

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THE LAW ADVANCES

Dear Editor: The Commonwealth of Massachusetts has recently enacted a law which will be of great interest to the building industry in general, and to prefabricators in particular. This is the former Senate 605, to be published in August as Chapter 631 of the acts of 1947.

Because we were convinced that legislation of this type would constitute a real benefit to the public and a step forward for the building industry, the Bemis Foundation made its technical services available to drafters of this law, and we may bring out in the near future a short release on all of the features of the law and their relation to the general rationalization of building controls. Meanwhile, however, we wish to direct attention to certain features of considerable immediate importance.

Under the new law, two sections (3J and 3K) are added to Chapter 143 of the General Laws of Massachusetts. Briefly, they provide that the Board of Standards in the state Department of Public Safety shall set up alternative provisions covering the use of materials and structural systems in dwellings, which shall then become acceptable throughout the state, despite the possibly differing requirements of local building codes. When the Board of Standards has satisfied itself regarding any new material or construction system, and has brought out its regulations, a local building inspector must issue a permit if the material or construction system to be used complies with these state regulations.

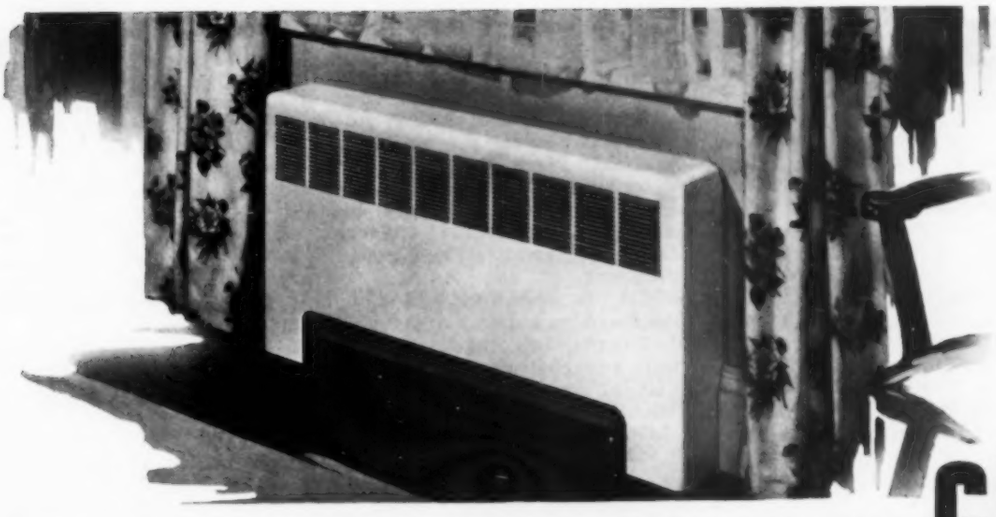
This makes it legally possible, we believe for the first time, for a prefabricator to have the new features of his fabrication system tested and approved by a state board, and thereafter to sell throughout a state-wide market, free of local building code restrictions and difficulties.

BURNHAM KELLY
Assistant Director
Bemis Foundation

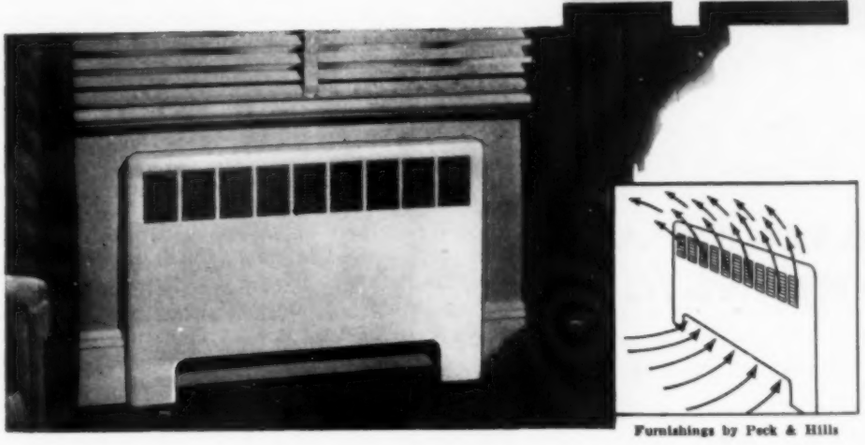
OUR MAY ISSUE

Dear Editor: I would like belatedly to tell you how much I enjoyed your Retail Store issue. In my opinion, this is the best architectural magazine to come out since I have been in the business. Congratulations!

A. L. AYDELOTT
Dent & Aydelott
Memphis, Tenn.



THERE'S A REASON WHY HOME OWNERS APPROVE CH*



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NOTICES

COMPETITIONS

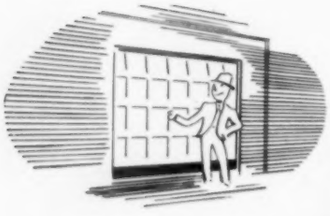
PAUL CANIN, a student at Pratt Institute, Brooklyn, N. Y., has been awarded the $1,000 prize offered by *Garrison's Magazine* for the best design of a junior department store. The competition was open to the American Designers' Institute and its junior and student members. Five prizes of $100 each were awarded to WESTON ANDERSON, ANN RUTH BOCK, HARRY DAVID GUTMAKER; and to two teams: PAUL WRABLICA and PAMELA DOHNER; and GEORGE H. and MAX C. HANNENSTEIN. All are students at Pratt.

Announcement of the jury for the Jefferson National Expansion Memorial Competition reveals seven distinguished architects on the panel. They are: HERBERT HARE, Kansas City, Mo., landscape architect and city planner; FISKE KIMBALL, Philadelphia, Pa., architect, historian of Jeffersonian architecture, and director of the Philadelphia Museum of Art; LOUIS LABEAUME, St. Louis, Mo., architect, and former vice-president of the A.I.A.; CHARLES NAGEL, JR., architect, and director of the Brooklyn Museum of Art; RICHARD J. NEUTRA, Los Angeles, Calif., architect, and chairman of the California State Planning Board; ROLAND A. WANK, New York, N. Y., consulting chief architect of the T.V.A.; and WILLIAM W. WURSTER, Cambridge, Mass., architect, and dean of the School of Architecture & Planning of M.I.T. The competition, awarding $40,000 to the winning design of the 42-block site, is open to architects, construction engineers, and students in those fields. Landscape architects, painters, sculptors, and laymen may take part by associating themselves with an architect. Further information is available upon request from George Howe, Professional Adviser, Old Courthouse, 415 Market St., St. Louis 2, Mo.

2 SIMPLE TESTS TO SHOW HOW THE

Barcol OVERdoor

IS WEATHERTIGHT AND EASY-WORKING...



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JAMES GAMBLE ROGERS has announced that upon completion of his current work his practice will be carried on by the firm of ROGERS AND BUTLER at the present offices, 70 E. 45th St., New York 17, N. Y.

ALEXANDER S. COCHRAN has opened an architectural office at 411 N. Charles St., Baltimore 1, Md.

EDWIN A. THORNQUIST, EVERETT D. WITTE, and SHERMAN S. SMITH have formed a partnership for architecture and engineering, with offices in the Eisfeld Bldg., Burlington, Iowa.

PAUL ATCHISON, architect, has associated with CARL A. KLOVERSTROM with offices at 1254 Monaco Parkway, Denver, Colo.

NEW ADDRESSES

LEO J. BARRETT, 1740 E. 12th St., Cleveland 14, Ohio.

FREDERIC HUTCHINSON PORTER, 1009 E. Lincoln Highway, Cheyenne, Wyo.

LESLIE MARKOVICH, Pioneer Builders, Inc., 5501 W. North Ave., Milwaukee 8, Wis.

J. RAYMOND MIMS, 2420 Wilson Blvd., Arlington, Va.

WILLIAM D. RAFFEL, industrial and architectural scale models, 55 E. 9th St., New York 3, N. Y.

HUGH STUBBINS, JR., 103 Pleasant St., Lexington, Mass.

GREGORY AIN, JOSEPH JOHNSON, and ALFRED DAY, 2404 W. 7th St., Los Angeles 5, Calif.

G. EVANS MITCHELL, B. of L. E. Bldg., Cleveland 13, Ohio.

AMERICAN HOUSES, INC., 165 W. 46th St., New York 19, N. Y.

C. BERT R. BITTER, Rm. 753, Penobscot Bldg., Detroit 26, Mich.

FOSTER AND YASKO, 407 Scott St., Wausau, Wis.

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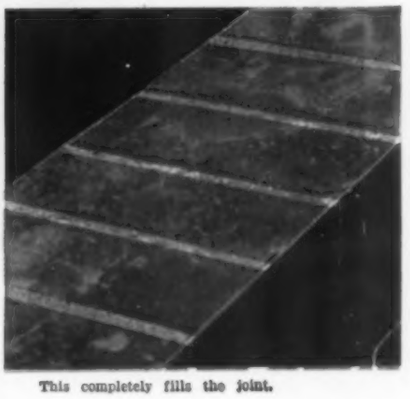
To secure full header joints, mortar should be spread over the entire side of the header brick before it is placed in the wall.

The brick should be shoved into place so mortar oozes out at the top of the joint.



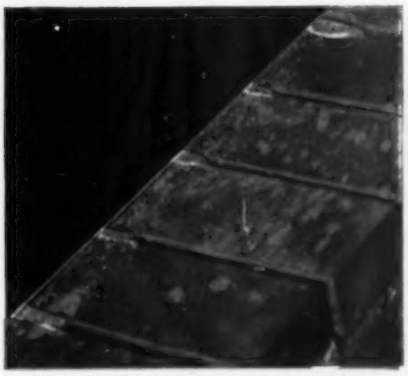
This completely fills the joint.

BRIXMENT is so workable, so plastic, that when the bricklayer pushes the brick into place, he does not have to *force* it home. The excess mortar "flows" readily into every part of the joint, thus providing good, full joints without requiring extra work or effort on the part of the bricklayer.

Aside from its greater plasticity, Brixment mortar has higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

When a dab of mortar is spotted on one corner of the brick,

A dab of mortar spotted on one corner (or both corners) of the brick cannot possibly fill the cross joint. Slushing will not fill the voids.



there is very little mortar in the cross joint.

Slushing will not fill the voids.

LOUISVILLE CEMENT CO.
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LOUISVILLE, KY.

THIS MONTH

MILTON FREDERICK KIRCHMAN

NILS AHRBOM

HELGE ZIMDAHL

Milton Frederick Kirchman, architect, of New York, is the author of the thought-provoking analysis, "Logic? . . . or Esthetics?" featured in this issue. After receiving his B.A. in English literature from New York University, Kirchman went on to study architecture at the university's School of Architecture, and at the Institute of Fine Arts in New York, where he received his Master's degree. He has taught at Brooklyn College and N.Y.U.'s architectural school (now defunct), and is busy with classes at Pratt Institute, Brooklyn, N. Y., and in the Division of General Education of N.Y.U. Before starting his own practice, he was engaged in hospital planning, stress analysis, and structural design.

Two new Swedish museums are presented this month. The Linkoping design is the work of **Nils Ahrbom** and **Helge Zimdahl**, architects, who are not only good friends and partners, but brothers-in-law as well. (G. Howard Smith, who sent the museum pictures to us, writes that only the most initiated can separate the work of one from the other—little wonder!) Both men graduated from the architectural school of Kungliga Tekniska Hogskolan in 1927, where Ahrbom now holds a professorship. They have been in partnership since 1932, principally designing schools, sports structures, industrial and laboratory buildings. **Kurt von Schmalensee**, architect of the Norrkoping museum, is also a graduate of the Tekniska Hogskolan, from where he went on to study at the Academy of Arts. He was appointed city architect for Norrkoping in 1929, and his work is comprised mainly of buildings for that city.

KURT VON SCHMALENSEE

Widely known for advanced theories on school construction, the firm of **Franklin, Kump & Falk**, of San Francisco, demonstrates adeptness in another field with the design of the new airport buildings for Merced and Modesto, California. (For biographical notes, see April 1945 PROGRESSIVE ARCHITECTURE.)

The projected All Saints' Episcopal Church for Riverside, California, comes from the office of Ralph C. Flewelling &

(Continued on page 16)

NEXT MONTH

- Continuing our series of Critiques of the primary building types, we will present next month a review of five homes. The architects whose work has been chosen by the editors for this critical presentation are: Robert Montgomery Brown, Philadelphia, Pennsylvania; Kenneth Kassler, Princeton, New Jersey; Jack P. Coble, with Raymond Loewy Associates, New York, N. Y.; Clarence W. W. Mayhew, of San Francisco, California; and Campbell & Wong, of the same city. All the houses are suburban or country places.
- From Norway we have obtained pictures of the recently completed Radiohus in Oslo, designed by Nils Holter. The wing of the building containing broadcasting studios and facilities for studio audiences will be shown in some detail.
- In the same issue there will be data on "A Modular Garden for a Residence," prepared for our readers by James C. Rose, landscape architect, of New York, N. Y. The Materials and Methods section will conclude with a discussion of newest developments in Quonset construction—based on material obtained from Stran-Steel Division of Great Lakes Steel Corporation.

An Exclusive Creation
BY TILE-TEX

Architects are designers—as such, they prefer to use materials that enable them to create proper decorative backgrounds for any interiors.

That's one reason why so many architects prefer Tile-Tex Asphalt Tile*—because it gives them more design freedom in creating correct floors for the interiors of buildings. This is particularly true in retail stores, where modern merchandising requires floors of appropriate design.

Variety of color and size, plus the necessary decorative and functional accessories, are all available in Tile-Tex Asphalt Tile. Here's a product that helps the architect create beautiful, striking floors that help merchants sell goods.

Tile-Tex does more than give the architect design freedom. It gives his client a long-wearing durable floor—easy to clean and keep clean—resistant to stains and scars. Its smooth, tread-easy surface is comfortable to both customers and store employees.

Our experience in planning individualized floors for merchandising areas may be of some value to you at some time. We would appreciate the opportunity to help you.

The Tile-Tex Co., Inc., Chicago Heights, Ill. Sales Offices: Chicago, New York, Los Angeles and New Orleans.

ASPHALT TILE-TEX TILE

TILE • TEX ASPHALT TILE

*REGISTERED TRADEMARK OF THE TILE-TEX COMPANY, INC.

THIS MONTH

(Continued from page 14)

Associates, architects, of Los Angeles, California. **Ralph C. Flewelling** was educated at Wesleyan University, Middletown, Connecticut, and did graduate work at Massachusetts Institute of Technology. He has been practicing architecture in Los Angeles since 1924, where he has been an active participant on numerous architectural and planning boards. A Fellow of the A.I.A., he has served as an officer of the Southern California Chapter, from which he has received honor awards.

The second proposed church structure, for the Church of the People, Seattle, Washington, is a design of **Pietro Belluschi**, well known Portland, Oregon, architect whose work has been presented many times in the pages of PROGRESSIVE ARCHITECTURE. (See August 1946 issue for biographical details.)

From Berkeley, California, comes the residential example selected this month, the work of John Ekin Dinwiddie, architect; Albert Henry Hill and the late

RALPH C. FLEWELLING

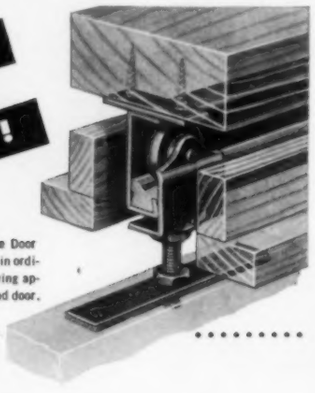
JOHN EKIN DINWIDDIE

ALBERT HENRY HILL

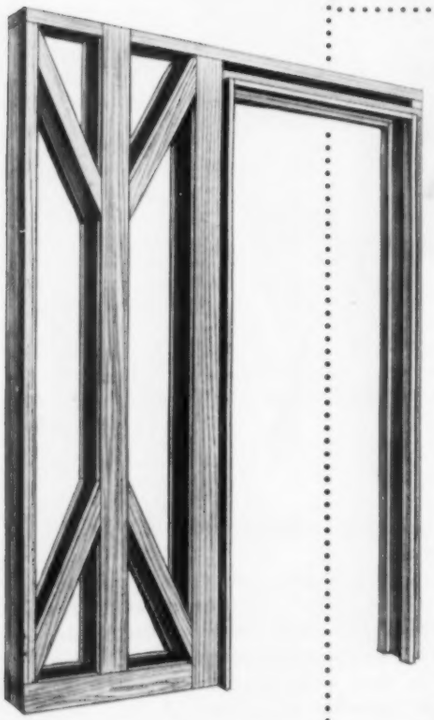
Phillip Joseph, associates. **John Ekin Dinwiddie** attended the University of Michigan, did graduate work under Eliel Saarinen, and then toured Europe as holder of the Booth Traveling Fellow-

(Continued on page 18)

More USABLE floor space at LESS COST!



Richards-Wilcox No. 719 Vanishing House Door Hanger and wood lined track installation in ordinary 2 x 4 studded house partition, showing application of hanger and track to header and door.



(Above) Mill construction of R-W designed "Ordinary Wall" pocket for installing vanishing house doors operating on R-W No. 719 house door hangers in ordinary 2 x 4 studded partition. This construction, developed by Richards-Wilcox engineering department, solves the problem of builders and architects who desire to get the advantages of "Richards-Wilcox" Vanishing House Doors without increasing the width of the ordinary 2 x 4 studded partitions.

with R-W Residential Vanishing Door Hangers

Designed for use in 2" x 4" Studded Walls!

Present-day home building costs require maximum use of *all* available floor space. That is why Richards-Wilcox Vanishing (sliding) House Doors are now more popular than ever. Floor space "wasted" due to the swinging arc of hinged doors can be fully utilized with vanishing doors . . . furniture, pictures, lighting fixtures can be located conveniently and correctly.

And with R-W Vanishing House Doors there is no extra construction cost! The R-W "Ordinary Wall" pocket permits installation of vanishing doors in standard 2" x 4" studded partitions. Get complete details from your nearest Richards-Wilcox office—free consultation available without obligation.

1880 RICHARDS WILCOX R-W AURORA 1947

OVER 67 YEARS

Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"

AURORA, ILLINOIS, U.S.A.

BRUCE FINISHED FLOORS have saved us more than $45,000 since 1942!

—Reports L. H. MILLS

Leading Chicago Home Builder

Here is an outstanding record of economy and performance that speaks for itself. The use of Bruce Finished Floors in 948 units saves $45,000 and 3,792 working days! The reason—the elimination of costly, time-consuming sanding and finishing on the job.

Throughout the country, builders choose Bruce Finished Flooring because it saves them time and money . . . and because it gives home owners more beautiful floors with a superior, longer-lasting finish.

E. L. BRUCE CO.
Memphis, Tenn.

Laurance H. Mills, President
Jack Alan Mills, Vice President
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Brokerage
Management
Home Building
Insurance

June 3, 1947.

E. L. Bruce Co.,
Memphis, Tenn.

Gentlemen:

As you know, we began purchasing Bruce Finished Flooring from Barr & Collins, in 1942, and have been using it exclusively in all of our housing construction. In fact, I understand that we were the first in the Chicago area to change over to this new type of hardwood flooring. Therefore, I am sure that you will be interested in the following data from our records.

(1) Since 1942, we have installed Bruce Finished Floors in a total of 948 individual houses in our projects at Racine, Wis., and Elgin, Franklin Park, Ivanhoe and Elmwood Park, Ill.

(2) On these four and five room units we have realized a saving in flooring costs averaging $45 to $50 per unit through the elimination of "on-the-job" finishing. This totals more than $45,000 on all units completed to date.

(3) In addition to the actual dollar savings mentioned above, we have gained many valuable days' working time ordinarily required for sanding and finishing. I couldn't even begin to estimate the value of this saving alone, but I think it is sufficient to point out that at a minimum average of four days per unit, this amounts to 3,792 working days.

Of course, Bruce Finished Floors have many other advantages, but I think that the above is sufficient to tell you why Mills and Sons have been and will continue to be enthusiastic boosters for these fine floors.

Also, I want to take this opportunity to congratulate E. L. Bruce Co. on their stabilized price policy. I was surprised in looking over my lists the other day to find that the list price of Bruce Finished Flooring is actually less in many cases than that of some unfinished strip floorings.

Keep up the good work.

Sincerely yours,

MILLS AND SONS
BY: Laurance H. Mills
President.

LHM:EH

BRUCE *FINISHED* FLOORS

THIS MONTH

(Continued from page 16)

ship. He established his own general practice in San Francisco in 1932, and proceeded to attract national attention through his work and the winning of numerous national competitions. In 1938 an association was formed with **Albert Henry Hill**, a graduate of the University of California who had worked for his Master's degree at Harvard under Dr. Walter Gropius and Marcel Breuer. Associated at first, Hill soon became a full partner in the firm, which continued to win competitions, notably, the *House & Garden* 1st prize for three consecutive years. After the war years, which Dinwiddie spent in defense and war housing and Hill in the armed services, a new partnership was formed with Eric Mendelsohn as the third member of the firm. This firm was recently disbanded, Hill and Mendelsohn forming a new partnership, and Dinwiddie reopening his own office.

"Cavity Wall Construction," the featured article in this month's Materials and Methods section, was written for us by Ben John Small. Since a biographical note on the author was printed in the August 1946 PROGRESSIVE ARCHITECTURE, he has been made an associate with Alfred Hopkins & Associates, well known New York architectural firm.

Back to Peace-Time Cleaning Efficiency

Before the war, the majority of the biggest, newest and best office buildings, schools, theatres and hotels were equipped with Spencer Central Vacuum Cleaning. The speed of perfect cleaning, low maintenance costs and all-round reliability of the system was endorsed by architects, engineers and owners everywhere.

Spencer is coming back — with rapid strides. If you are planning any building — make simple investigations and comparisons with other methods before you decide.

Spencer Data Sheets will help you. Please mention the types of buildings or industries you are interested in.

SPENCER VACUUM CLEANING
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307D

NOTICES

APPOINTMENTS

Stanford University, Stanford, Calif., has announced the appointment of VICTOR KING THOMPSON as assistant professor of art. Mr. Thompson will devote his time to the development of the curricula in pre-architecture and pre-industrial design.

WILLIAM W. WURSTER has accepted the chairmanship of the Architectural Advisory Committee of the Federal Public Housing Authority. Mr. Wurster succeeds HOWARD MYERS, who has resigned for reasons of health.

GLEN LUKENS, ceramic artist, has become affiliated with Lightolier, Inc., and will design glass and ceramics for the company's lamps and lighting fixtures.

SCHOLARSHIPS, COURSES

DALE C. BYRD of the firm of Skidmore, Owings & Merrill, has been awarded the annual Rotch Traveling Scholarship. Mr. Byrd, who holds a master's degree in architecture from Harvard, will continue his studies in France and Italy.

Review courses for the New York State Registration Examinations have been announced by the FEDERATION TECHNICAL INSTITUTE, 5 Beekman St., New York 7, N. Y. Classes cover eight fields in architectural design and construction, and begin September 22. Further information on enrollment is available upon request from the Institute.

NEW PARTNERSHIPS, PRACTICES

CORTLAND ENGINEERING CO., structural engineers, have opened an office at 5 Beekman St., New York 7, N. Y.

L. W. COOK and R. A. ZERN have formed a partnership to be known as COOK AND ZERN, consulting engineers, with offices at 607 Wabash Bldg., Pittsburgh 22, Pa.

J. LEE THORNE, ASSOCIATES, industrial designers, have begun a new practice at 1700 Sansom St., Philadelphia 3, Pa.

IRVIN MICHAELSON and WILLIAM J. FEDELI have formed an architectural partnership with offices at 905 Fox Bldg., Philadelphia 3, Pa.

A. N. MCANINCH and J. R. MAHNKER, JR., have announced the establishment of an architectural partnership at 512 Exchange Bldg., Little Rock, Ark.

HAROLD J. PERRY has opened an office for architectural practice at 16 Bloomfield Ave., Flemington, N. J.

EVANS AND DAVIS, architects-engineers, have opened an office at 403 Fulton St., Troy, N. Y.

JOHN P. O'NEILL has opened an office rendering architectural services in the planning, specification, and supervision of building construction at 625 Hutton Bldg., Spokane, Wash.

STEEL DECK... Goes to SEA!

The Decks of the "Delaware Belle", new Wilson Line Excursion Boat, are of Mahon Steel Deck rolled from Yoloy.

. . . Versatility of MAHON STEEL DECK Permits Myriad of Uses in Modern Construction

Mahon Steel Deck, rolled from high-tensile, low alloy Yoloy, was used for decks of the all-welded, all-steel constructed "Delaware Belle", of the Wilson Line, illustrated here . . . this is typical of numerous new applications by alert designers in which Steel Deck solved their problem of light weight construction with adequate strength and rigidity. You will find that Mahon Steel Deck, due to its basic design, with narrow, vertical-leg stiffening ribs, lends itself to a broader range of uses in modern construction. See Mahon's Insert in Sweet's File for complete information, specifications and latest construction details, or consult a Mahon representative.

The all-welded, all-steel constructed "Delaware Belle". All three of the upper decks are Mahon Steel Deck rolled from high tensile, low-alloy Yoloy.

THE R. C. MAHON COMPANY

Home Office and Plant, Detroit 11, Michigan

Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

MAHON

PROGRESS REPORT

THE VETERANS HOSPITAL PROGRAM

The much publicized Veterans Administration new hospital program, which got off to such an auspicious start last year, threatened during this last month to blow up and hurt someone. Unfortunately, the private practicing architects (who have been giving an excellent account of themselves) were within range and in danger of becoming casualties. Capable architects were having their plans returned after review with severely critical comments; the program had stopped for what one engineer-general called a "breathing spell." What had happened? PROGRESSIVE ARCHITECTURE has studied the situation at first hand and, digging behind the many complicating factors, is convinced that the issue resolves itself to a large and simple question: can an agency of the Government afford to sponsor good design by competent architects, or must public works continue to be unimaginative and undistinguished?

The most successful Government building programs have been those in which an *advisory* bureau has worked with a carefully selected group of private architects and engineers. The Hospital Facilities Division of the U. S. Public Health Service is an outstanding example of this advisory and consultative function on the part of a Government agency. To be cruelly blunt, the work done by the design and construction service of the Veterans Administration, before the present program was turned over to the Army's Corps of Engineers, was a depressing example of the tired lack of inspiration that has characterized so much public building's architecture.

WHICH GOVERNMENT AGENCY DO YOU READ?

The site for this hospital, designed by the Veterans Administration, is ideal for the care and rehabilitation of the neuropsychiatric patients who will be its occupants. . . . Reinforced concrete and steel construction will be used for all buildings. They will have a brick exterior trimmed with limestone and designed in the Georgian style of architecture.—*War Department, Public Relations Division.*

It is of utmost importance to remember that a hospital is more than just a building with bedrooms. It is a complicated, highly specialized functional structure which must be designed for the various facilities, instead of having the facilities forced into certain areas because of a desire to produce some particular architectural appearance.—*Division of Hospital Facilities, U. S. Public Health Service.*

The *new* V. A. hospital program promised to be (and has been, up to this point) an exciting illustration of the right way to do the job. Design and construction were entrusted to the U. S. Army Corps of Engineers. Lt. Col. William E. Jeffrey (now Mr. Jeffrey), speaking to the architects last year for Brigadier General Bragdon, Assistant Chief of Engineers for Military Construction, promised: (a) "The Corps of Engineers proposes to do none of the design work"; (b) "We are not going to use any standard plans"; (c) "The concurrence of the Veterans Administration on preliminary designs will be secured by the Chief of Engineers. . . . With that approval the Veterans Administration then transfers whole responsibility . . . . to the Chief of Engineers . . . . So you have not two masters to serve; only one."

The architects naturally applauded this program. Things started well. The written and graphic programs for various types of hospitals, prepared by the V. A. medical staff under General Hawley, and transmitted to the architect-engineer firms by the Engineers, were excellent statements. ("The standards of planning of veterans' hospitals are probably the highest we have had yet in the history of the United States"—November 1946 PROGRESSIVE ARCHITECTURE, p. 58.) As architectural firms were chosen in various parts of the country, an unusually intelligent approach to this tough problem of selection was apparent. Younger, local firms were allied with more experienced, established architects. Progressive, forward looking designers turned up for the first time in assigned Government work. The Corps of Engineers was an admirable client; reviews were fair and rapid. Everything seemed rosy. Where, under the old dispensation, the V. A. had fumbled for several years on the design of five hospitals, now within a few months $770,000,000 worth of work was largely assigned and began to pass rapidly to the working drawing stage. Outstandingly able designs appeared.

But trouble was brewing. In the arrangements that had been made, and that had been approved by General Bradley as part of his over-all housecleaning in V. A., one factor had been bypassed and lay quietly waiting until the time came to reassert itself. That was the design and construction service in V. A. If this Civil Service group had been brought into the program as an advisory agency, later trouble might have been avoided. As it has turned out, pressure to allow the V. A. to do more than review preliminaries became too great for the Corps of Engineers to resist, and in February of this year the Corps practically withdrew as client (remaining as administrator) and a board of review was set up within the Veterans Administration to go over the architects' work from the medical, social service, and design points of view.

Some of the review was undoubtedly necessary; some of the comment was valid; not every architect working on the program was an hospital expert. However, inconsistency and delay appeared because of this revised arrangement, and in some instances picayune and unreasonable criticisms were offered. The architects grumbled, discussed the situation among themselves, and finally asked the A.I.A. to act. Meanwhile, the Engineer branch of the Army found the increasing interference by the Veterans' branch unbearably hampering, and about a month ago practically stopped the entire design program until the matter could be adjudicated. The various generals have held long meetings; the lower staff members have glared at one another; hospitals for veterans have waited.

Another factor has complicated the situation: costs are running higher than the original estimates. It is interesting to note that individual architects were given programs, but not budgets. Bid costs on the jobs for which drawings have been completed have run high—up to almost $1.80 a cubic foot. V. A. and the Engineers are agreed that the original $770 million program will actually cost $150 million more than that to build. What General Bragdon calls the present "breathing spell" is being used to decide whether to ask for more money from an economy-minded Congress or to reduce the program, either in number of structures or building by building.

The situation is potentially dangerous to architects and architecture, because a solution which now turned the program back to V. A. would tend to discredit the work that has been done. In future Government design, it would be possible for bureaucrats to point a finger and say, "See—the private architects did a poor job on the V. A. program. They were incompetent, slow, and extravagant. The old Government agency had to take over the job to get it done." Undoubtedly, a compromise will be reached, and the Engineers will not pull out of the program, as has been rumored. The compromise will allow the V. A. design bureau to design some of the remaining jobs that have not been assigned. Just what will happen about review of architects' work in progress is anybody's guess and General Bradley's decision to be made.

It is a situation for all architects interested in design progress to watch carefully. If a bad solution seems imminent, full support for an agressive campaign by the A.I.A. would seem to be indicated. A big step forward both in hospital design and in architect-Government relations had been made, and it would be too bad to shuffle backward. This sort of advance in architecture is worth fighting for.

G. E. Kidder Smith

Dynamic forms which rest on apparently fragile supports replace the entablature and column of trabeated architecture.

LOGIC?... OR ESTHETICS?

A STUDY OF IRRATIONALISM IN SOME MODERN WORK

By MILTON FREDERICK KIRCHMAN, Architect

We want to be sure we understand each other when we speak of modern architecture as a rational expression. One aspect of modern architecture—that one which has come to be known as the "International style"—is now almost a historical movement, and can be evaluated critically. Although it is somewhat difficult to define, since its influence has spread to so many people and so many places, it has been described by numerous writers, and we know its qualities from photographs and examples around us. There are several ideas about modern architecture of this particular expression which would benefit from re-examination. One idea, which springs not from the proponents but from the opponents of modernism, is that architecture in the manner of the International style is reduced to a bare "functional" and "rational" expression.

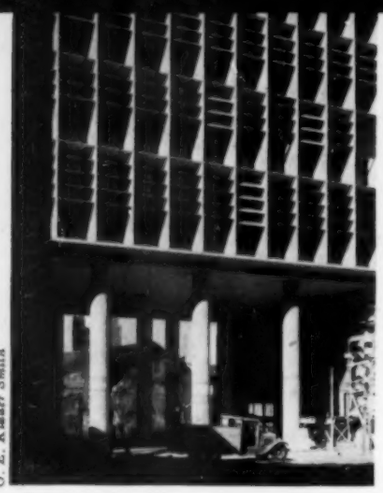
Most of the discussion of "modern architecture" has expressed either blind adherence or automatic rejection. A typically antagonistic comment is to the effect that all modern design is coldly rational and scientifically functional. It ignores, say its critics, the emotional and esthetic content of architecture. This article, we feel, should help to destroy that illusion. Mr. Kirchman analyzes the modern expression that has come to be known as the International style, and points to its emphasis on purely emotional and frankly esthetic design concepts.

While we do not agree entirely with some of the author's conclusions, we admire his generally objective attitude. It's time we all grew up and stopped being hysterical about this subject.

The Editors

Protagonists of the International school themselves disavow that their architecture is "functional." As a matter of fact, Le Corbusier, Mies van der Rohe, Walter Gropius, and J. J. P. Oud, all of whom we associate with the movement, have subscribed to an esthetic credo which "deliberately opposed the highly materialistic theory of 'functionalism,' a credo so unrealistic that it was never actually practiced even by those who were most articulate in its support."[1] Le Corbusier also has said that "Architecture has another meaning and other ends to pursue than

[1] *Elizabeth Mock*, Built in U.S.A.; 1933-1944, *Museum of Modern Art, New York, N. Y., 1944, p. 12.*



G. E. Kidder Smith

Columns partly concealed by shadows tend to disappear in space.

Ezra Stoller

Forms are open; spaces penetrate one another; the facade as such is purposely destroyed.

Materials may be selected and juxtaposed for esthetic as well as structural reasons.

showing construction and responding to needs."[2]

International style is not so much an expression of modern materials, of modern technology, or, for that matter, of a scientific outlook in general, as it is an outgrowth of esthetic principles which are *anti*-rational rather than rational in some of their fundamentals. Historically and stylistically, this aspect of modernism is allied to cubism, constructivism, futurism, purism, and related developments in art. In its use of geometrical forms it recalls abstract painting and sculpture. It disavows ornament because it is a non-representational style; it works with so-called pure forms. It is an architecture of space. In it, science and logic are adapted to serve the needs of expression. Expression is "felt": it is an inner compulsion. As such, the International style may be viewed as a contemporaneous phase of neo-romanticism expressed in terms of modern dynamics and technology.

I propose to point out a few of what I consider to be anti-rational elements in modern architecture, which have resulted from the influence of the International school, and let the chips fly. Only when these matters are understood, and not misinterpreted, can architecture of this school be properly evaluated.

For example, why are so many examples of architecture in the International style "anti-gravitational" in character? This architecture seeks dynamic forms. It creates the effect of forms suspended in space to acquire an intensity which is emotional rather than rational, esthetic rather than structural. In this modern work the feeling of weight is avoided. The relationship between beam and support is concealed. The pediment, entablature, and columns of classical trabeated construction are forgotten. Although a steel frame is in essence a compound trabeated form, the relationship between load and support is destroyed by sheathing columns in shiny metals which reflect light and thereby dematerialize the effect of a solid supporting substance. Gropius's Bauhaus has miracles of glass walls which stand free from the skeleton frame. By reason of scintillating reflections and deep shadows in the sun, as in much of the Brasilian work, the wall is transformed into an impressionistic play of light and shadow, of a space within a space. In many instances, the structure as a whole appears to be a floating mass resting on comparatively insubstantial sticks rather than on ponderous columns which almost shout their load-bearing activity. The anti-gravitational character of the style cannot be identified with scientifically rational construction: it does not grow out of technical needs. We cannot say that it is a function of plan. Anti-gravitation, per se, is an esthetic device.

Then too, it seems to me that architecture of the International style is deliberately "anti-symmetrical." Let us avoid the phrase, unsymmetrical. The Erectheum is unsymmetrical; the Propylaea is unsymmetrical. But neither the Erectheum nor the Propylaea is anti-symmetrical. The approach we are discussing is anti-symmetrical in that it *avoids* symmetry. Symmetry ties forms to an arbitrary logic. Symmetry produces static balance, but order and balance obtained through symmetry are not considered assets in International style. Its order and its balance are obtained by other devices.

International architecture is not illogical because it is anti-symmetrical. It is not irrational in the sense that it is not motivated by a program. To the contrary, International style is highly programmatic: it is notable for its manifestoes and intellectual excursions. A historical implication is intended in speaking of anti-rationalism in the sense used here. Perhaps it would be better to speak of it as anti-classicism rather than anti-rationalism. Let me explain: the nineteenth century experienced a conflict over the issue of classicism versus romanticism. Classicism not only reverted to Greek and Roman antiquities and to the humanistic past, but it also sought order and symmetry, definition and clarity, in style. Classicism was conceived as a rational expression as opposed to romanticism, on the other hand, which found escape in a mystical and medieval past. The International style in our own century also has a historical record of protest against arbitrary restraint identified with symmetry and, coincidentally, with classicism.

Another feature of many modern structures is the

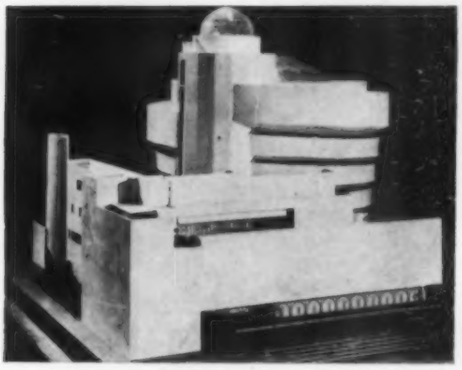
[2] *Le Corbusier*, Towards a New Architecture, *Architectural Press, London, England.*

G. E. Kidder Smith

Cantilevers have a structural use; they can also be purely esthetic devices.

Eva Stoller

The urge to express structure is often emotional; posts may be obtrusively evident.



An anti-gravitational and non-objective attitude has influenced many modern projects.

use of open planning. Comparisions with Baroque architecture are brought to mind. Space is conceived as a continuum. Forms are open: one leads to the other. No one form is strictly self-contained: all have a relationship to the space in which they exist and which they help define. This characteristic has been described stylistically as being "atechtonic." The International style makes wide use of atechtonic elements—curved two-dimensional walls, corrugated surfaces, overlapping forms, and other devices ably described in many books. The work of van der Rohe is well known for its employment of open planning. Although he uses planes, his style is not *planimetric*, but is spatial. And, unlike Baroque, his space is not plastic, of sculptured masses and voids, but is a space of nonsubstantial, dematerialized elements which interpenetrate one another and which themselves represent space.

Without questioning the architectural contribution of open planning, the point here is that such stylistic devices are not always functional in origin or in application. Often a closed space—a well defined cubical compartment, for instance—would do as well as an open space. Given the choice, the architect influenced by the International style will adopt the open space.

Still another characteristic of International modernism which may be isolated for analysis is the use of materials in a manner which is not rational, functionally or scientifically, although we *might* say that it is rational in that it is consistent with the style itself. To take an example of what is meant, there is a frequent use of polygonal masonry—rough-hewn, irregularly shaped boulders laid random in thick beds of mortar. One can almost see the anguish of the architect who calls for specially-hewn polygonal masonry and gets the available coursed ashlar instead. The use of stone, cork, glass, plastic, or what you may choose to name, produces a desired esthetic effect which has its logic in the juxtaposition of contrasting elements, emphasizing texture and color, for instance, rather than in the use of materials scientifically or technologically.

In regard to the *appearance* that is accepted as the result of modern technology, consider the use of the cantilever. Technically, a cantilever may be called for where a slab juts out over the water, or for some other reason cannot be readily supported. But what shall we make of the cantilevers on all the houses that do *not* hang over water? Cantilever construction in rigid frame design *can* and *does* effect savings in building costs. Cantilever design has suitable structural application. However, the use of cantilevers in International style is not always rational except, again, in a stylistic sense. To the contrary, structurally considered, cantilevers are like as not irrationally applied and simulate logical construction rather than achieve it.

Modular framing is another structural case in point. In modular framing, as employed in design of the International style, columns are often spaced in a regular pattern. A unit module is selected and this module is made to serve as the base for a grid system in the structural frame. Columns are permitted to stand outside an adjacent partition or wall even if it may be possible or desirable to conceal the column in the partition. Specifically, when the grid becomes an end in itself, dwelling as much in appearance as it does in structure, and being motivated by a concept of free-standing forms, the module may do violence to actual structural benefits.

This discussion has been entirely of the International style and the buildings it has influenced, although the properties mentioned are shared by much contemporary architecture to a greater or lesser degree. A strong influence back on Frank Lloyd Wright, from the style he unwittingly helped to create, is evident in several of his recent designs.

I do not argue that International style, or modern architecture in general, should discard these particular qualities. In fact, where they have been intelligently employed, they have been elements of a real contribution to the emergence of a genuine contemporary architecture. If we want to be good modern architects, we should know something about the origin and nature of various aspects of modern architecture. With this knowledge we can make progressive architecture more progressive. If we set up the question properly, the solution suggests itself more readily.

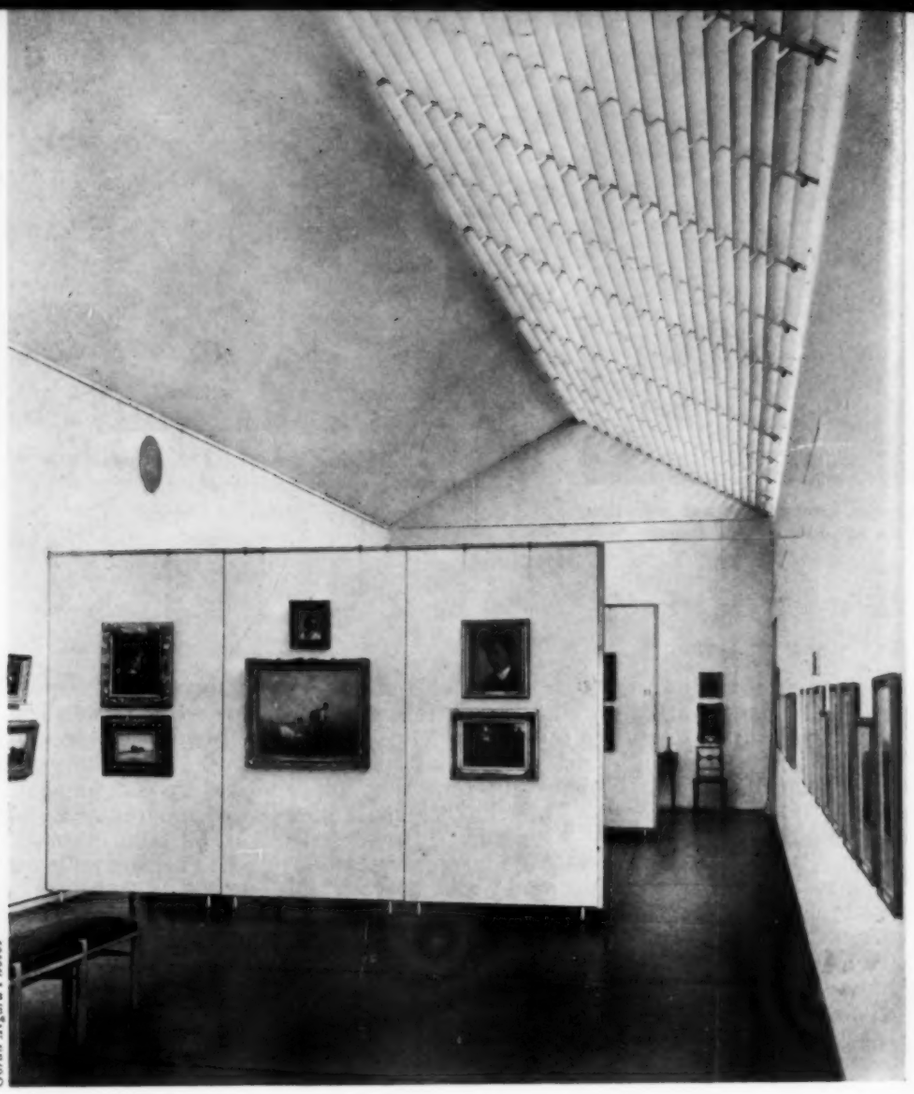
LINKOPING MUSEUM

NILS AHRBOM and
HELGE ZIMDAHL
Architects

Svenska Dagbladet

NORRKOPING MUSEUM

KURT VON SCHMALENSEE
Architect



Goran Algard Photos

2 MUSEUMS IN SWEDEN

THE MUSEUM AS A COMBINED SOCIAL AND CULTURAL CENTER

The progressive approach to museum design considers the collections as living indices from which all may read and enjoy the cultures and daily life of different times instead of dead remains to be placed in a tomb. "Life" rather than "necrology" is the function to be expressed in the final design form. In place of an impressive and imposing structure, unwelcoming in appearance and hard on the feet, today's museum offers recreation as well as enlightenment; and it tends to be a friendly place, including along with the collections some of the aspects and facilities of a social center, a proper meeting place for all sensible citizens. In museum technique, the contemporary trend has been both to reduce the size of exhibits and to change them often.

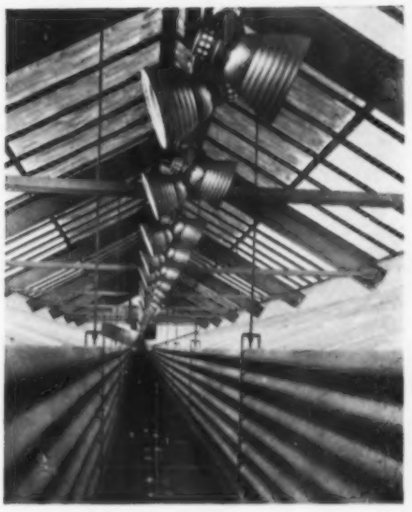
It is a very special pleasure to present two museums from Sweden that express this approach admirably. It should not be overlooked that these are small-city museums, not great megalopolitan warehouses of art. For our opportunity to publish these two significant bits of architecture, we are indebted to G. Howard Smith of Stockholm who told us about them in the first place and then, in conjunction with Goran Algard, the photographer, proceeded to document the material for our use.

In Sweden, according to Mr. Smith, "the idea of the 'living museum' has been taking firm root during the last ten to fifteen years . . . The National Museum in Stockholm—the national art gallery—has for many years now not only had a sizable and representative collection of the work of living painters and sculptors, but also a section containing examples of modern industrial art. At Rohsska Museet in Gothenburg, where the chief collections consist of books, printing, Chinese art and textiles, the main public-drawing attraction has been the exhibit of modern furniture and industrial art which is completely renewed every year. . . In fulfillment of the idea of raising the museum to a real center of culture and life, however, honors in Sweden must go to the two provincial cities of Linkoping and Norrkoping." It is these two museums which are shown on the following pages.

The differences between the two derive in the main from the distinctions between the cities where the museums occur. Linkoping, a city of less than 50,000 population, has long been the intellectual and cultural center of its province, a church center, and the seat of the provincial government. Norrkoping, on the other hand, with its 80,000 citizens (the fourth largest city in Sweden) is mainly renowned as a commercial and industrial center. Curiously enough—and an encouraging sign to those who believe art should be generally available—these two small cities are but 25 miles apart! Mr. Smith comments: "In both these places the museum has been transformed into a combined social and cultural center—'a world of knowledge and beauty available to all,' as a local dignitary expressed it—where not only the city's art and historical collections may be housed, but where local art events may take place and music be heard, and where also many of the more serious group-study activities may find a meeting place."

A number of traditional museum design problems are freshly solved in the two museums. Lighting of the main galleries is one. In Linkoping, the upper galleries are lighted from a louvered slope of the room ceiling that occurs underneath a roof skylight above. Since light enters the gallery from the slope, it is thrown onto the walls and main exhibits where it is needed. In Norrkoping, a flat glass ceiling above the main galleries borrows daylight from rows of clerestory windows in the building walls at either side above ceiling level. In both museums, ground-floor galleries are lighted by side-wall windows, quite closely spaced to cut down brightness contrast. Storage of reserve paintings is conveniently handled on sliding panel-screens that occur in walls between galleries; coatroom checking is open and immediately accessible—a pleasant contrast to the cavernous holes with bank-like window counters typical of so many traditional museums.

Perhaps the least common denominator between the two museums—and the most inspiring—is the completely human approach to the design, in plan, in choice of simple materials, in the refined but informal finished design which offers the visitor a greeting rather than a rebuff.



LIGHT FROM A SKYLIGHT (above) enters Linköping's main galleries (large photo, facing page) through louvered ceiling slopes.

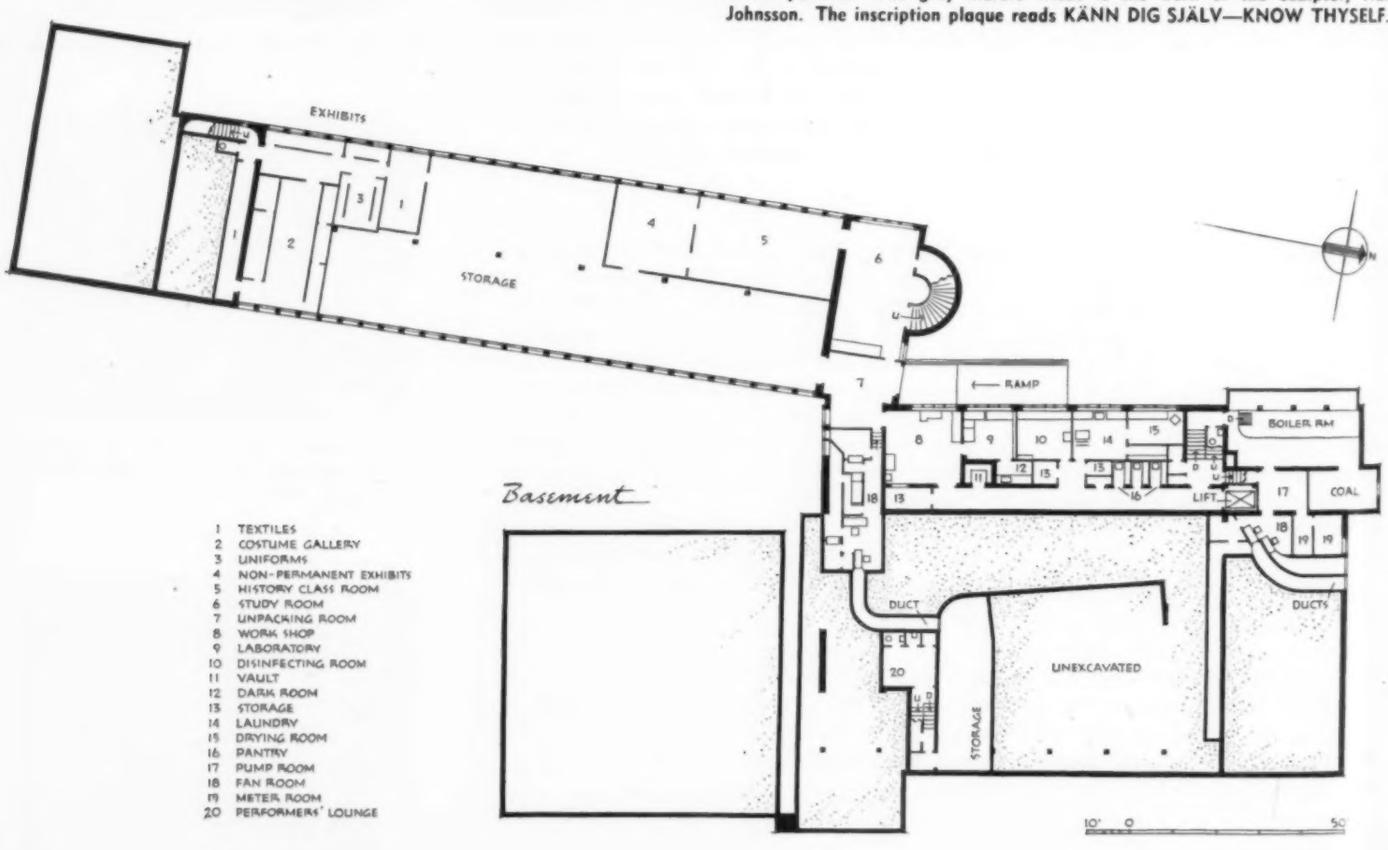
SLIDING STORAGE WALLS between galleries.

At Norrköping, ANGLED DISPLAY PANELS reduce reflections that occur when displays parallel the light source.

OPEN COAT CHECKING at Linköping Museum.

Goran Algard Photos

The MAIN ENTRANCE and the social activities section extend forward in a low pavilion. The gray marble frieze is the work of the sculptor, Ivar Johnsson. The inscription plaque reads KÄNN DIG SJÄLV—KNOW THYSELF.

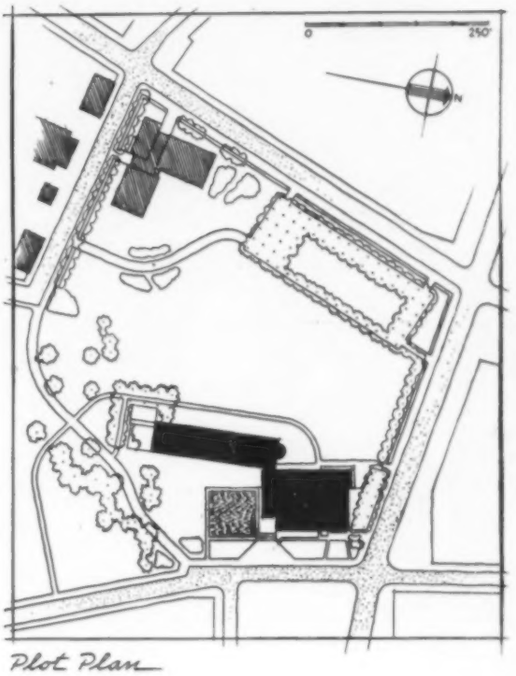


MUSEUM AT LINKOPING, SWEDEN

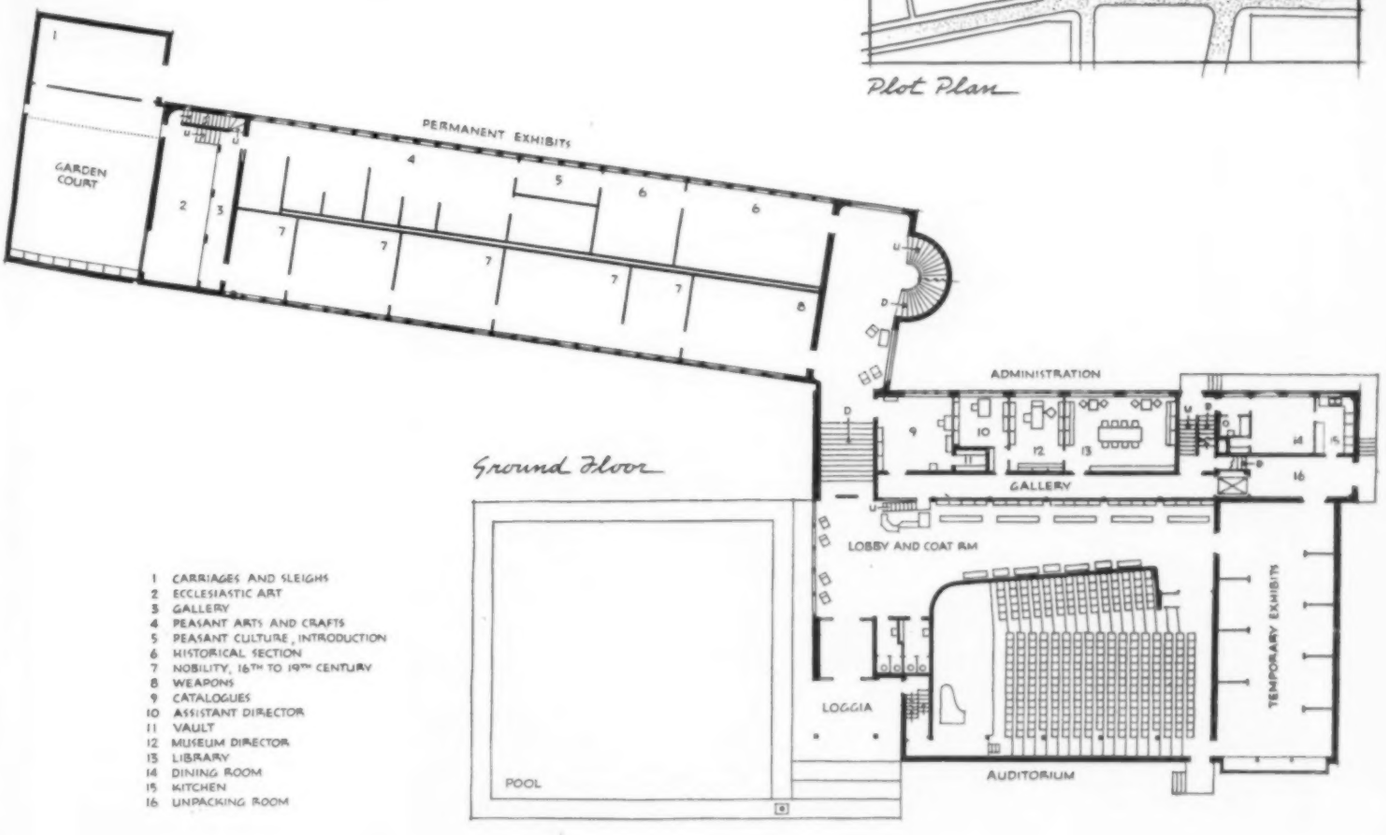
NILS AHRBOM and HELGE ZIMDAHL, Architects

Built on a site with beautiful trees, this gracious structure occurs in the medieval core of a modern community. Within the angle formed by the two wings of the building, the park-like character of the neighborhood is enhanced by inclusion of a children's wading pool, with seats arranged around the perimeter—an accent on youth and life in the midst of ancient dignity. Organization of the plan into two main elements assists the informality of the scheme. The hall for concerts and lectures may be used quite independently of the main gallery areas. Wall-height windows at the entrance and at the side of the main lobby achieve continuity between the natural beauty out-of-doors and the museum proper. Due to the size of the museum, as well as to its interior organization, a trip through is never a tiresome affair; in fact, the two-part plan enables a visit to be made in easy stages without the need to pass through rooms one may wish to avoid. In the basement, in addition to storage space and museum workrooms, there are rooms for study groups, at the bottom of the main stair.

GENERAL VIEW, looking across wading pool.



Plot Plan



Ground Floor

1 CARRIAGES AND SLEIGHS
2 ECCLESIASTIC ART
3 GALLERY
4 PEASANT ARTS AND CRAFTS
5 PEASANT CULTURE, INTRODUCTION
6 HISTORICAL SECTION
7 NOBILITY, 16TH TO 19TH CENTURY
8 WEAPONS
9 CATALOGUES
10 ASSISTANT DIRECTOR
11 VAULT
12 MUSEUM DIRECTOR
13 LIBRARY
14 DINING ROOM
15 KITCHEN
16 UNPACKING ROOM

Goran Algard Photos

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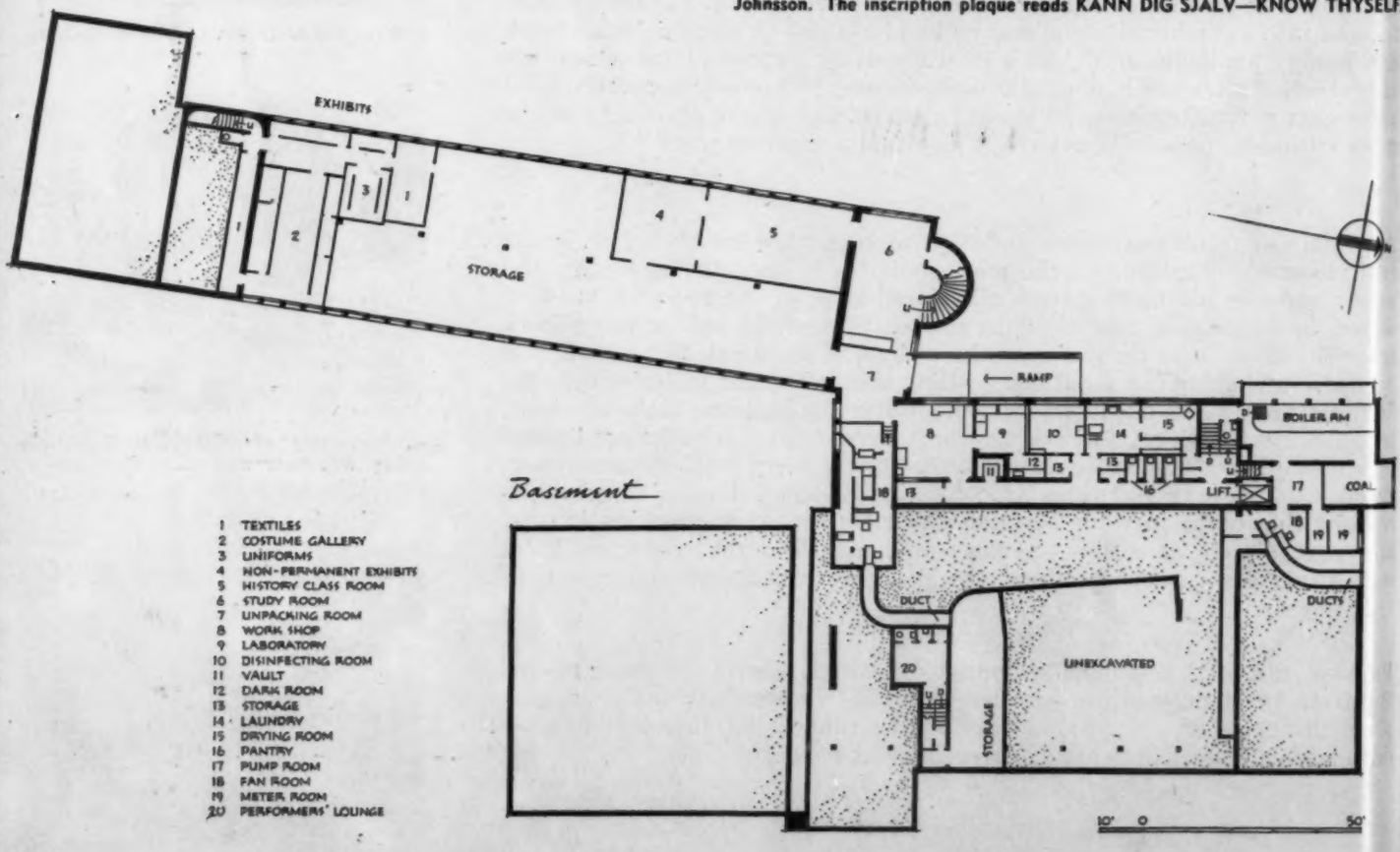


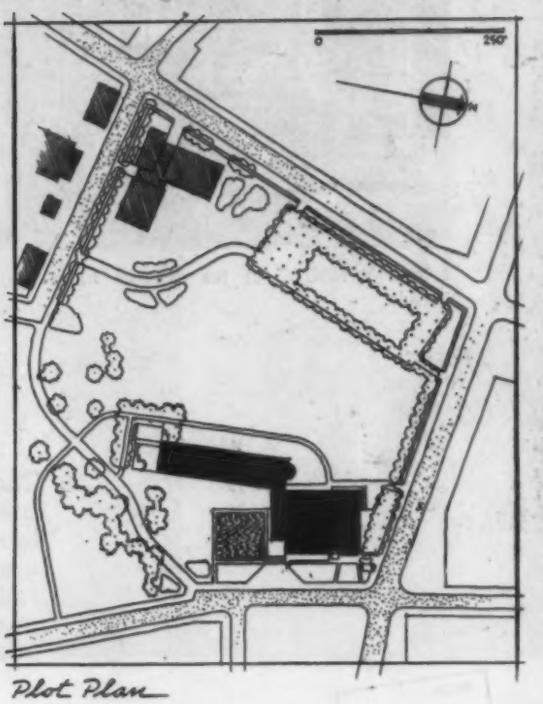
1 TEXTILES
2 COSTUME GALLERY
3 UNIFORMS
4 NON-PERMANENT EXHIBITS
5 HISTORY CLASS ROOM
6 STUDY ROOM
7 UNPACKING ROOM
8 WORK SHOP
9 LABORATORY
10 DISINFECTING ROOM
11 VAULT
12 DARK ROOM
13 STORAGE
14 LAUNDRY
15 DRYING ROOM
16 PANTRY
17 PUMP ROOM
18 FAN ROOM
19 METER ROOM
20 PERFORMERS' LOUNGE

MUSEUM AT LINKOPING, SWEDEN

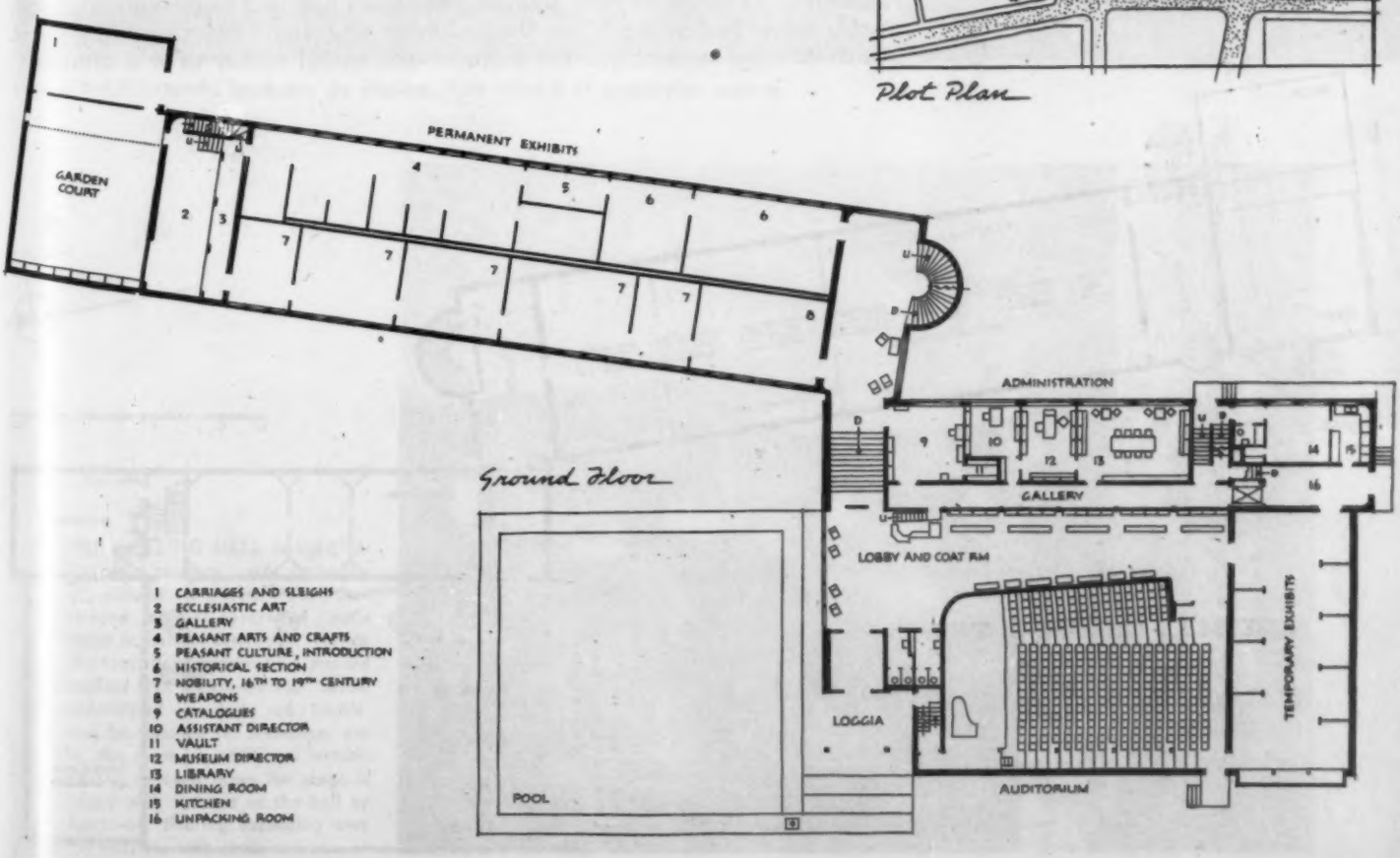
NILS AHRBOM and HELGE ZIMDAHL, Architects

Built on a site with beautiful trees, this gracious structure occurs in the medieval core of a modern community. Within the angle formed by the two wings of the building, the park-like character of the neighborhood is enhanced by inclusion of a children's wading pool, with seats arranged around the perimeter—an accent on youth and life in the midst of ancient dignity. Organization of the plan into two main elements assists the informality of the scheme. The hall for concerts and lectures may be used quite independently of the main gallery areas. Wall-height windows at the entrance and at the side of the main lobby achieve continuity between the natural beauty out-of-doors and the museum proper. Due to the size of the museum, as well as to its interior organization, a trip through is never a tiresome affair; in fact, the two-part plan enables a visit to be made in easy stages without the need to pass through rooms one may wish to avoid. In the basement, in addition to storage space and museum workrooms, there are rooms for study groups, at the bottom of the main stair.

GENERAL VIEW, looking across wading pool.



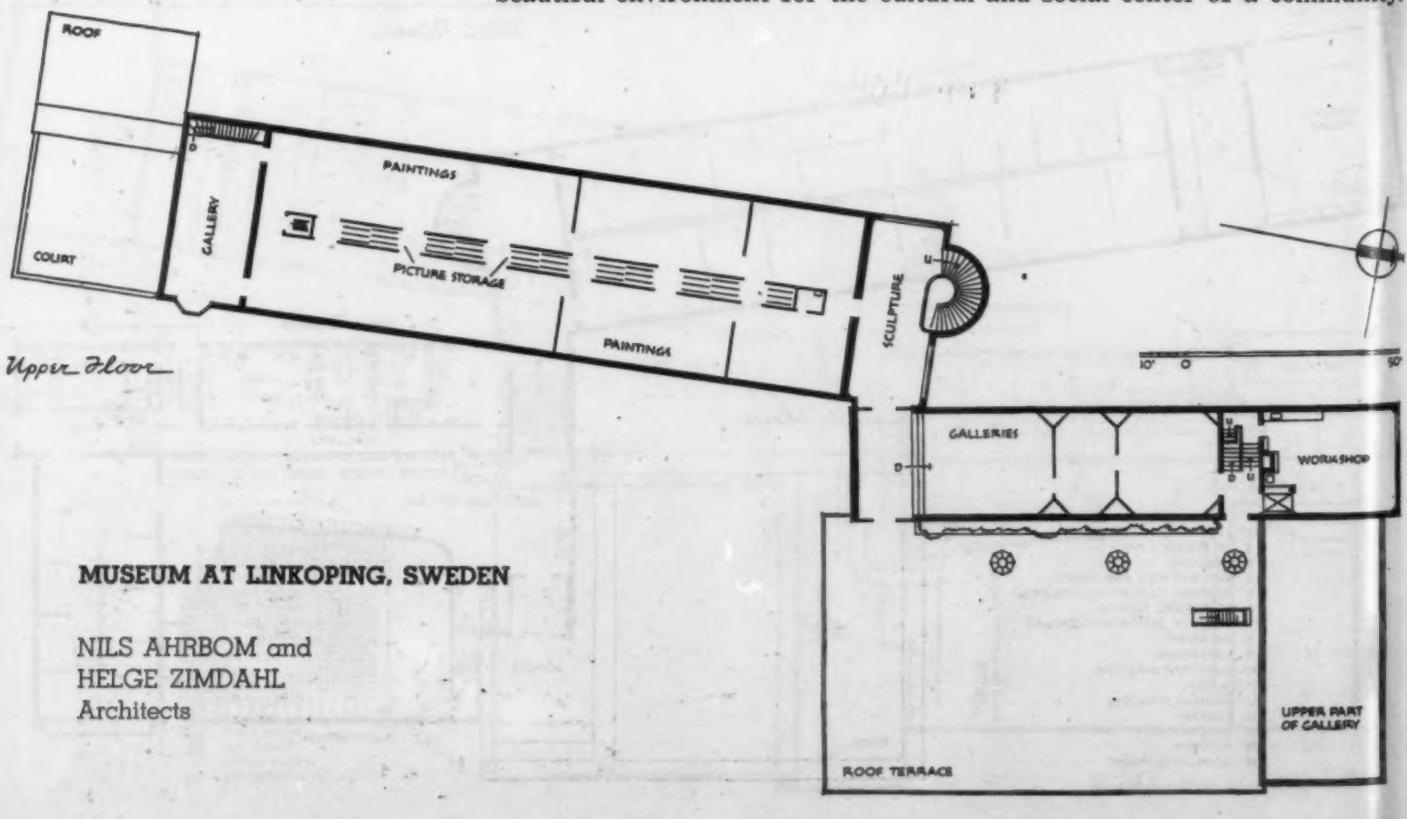
Plot Plan



LARGE WINDOWS at the entrance frame the pool outside.

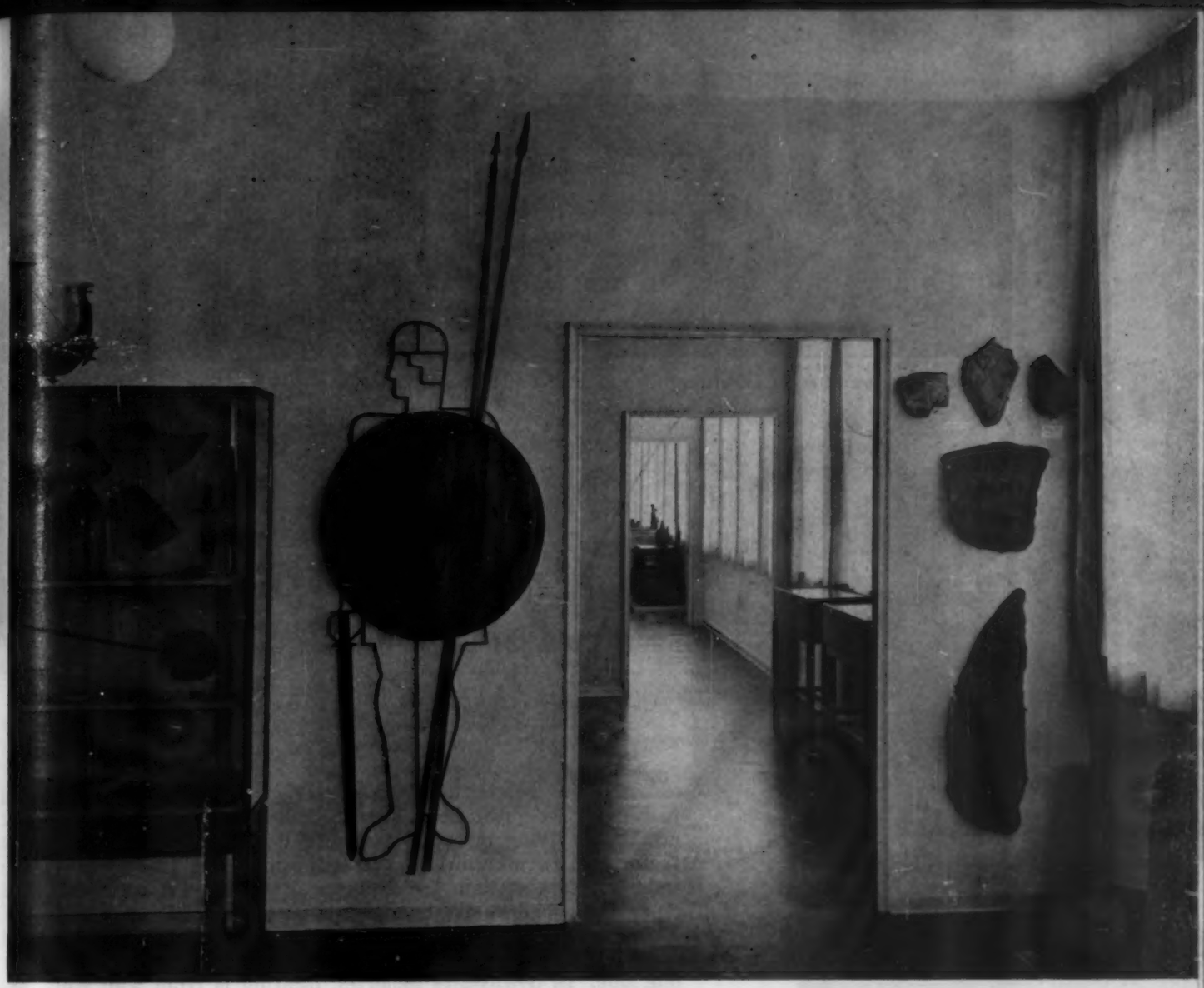
GATES close off the main gallery areas, permitting the public hall to be used independently.

The structure is a combination steel and reinforced concrete frame, with concrete floor and roof slabs; filler walls are of brick, with a soft buff-brown variety used for exterior surfacing. All public rooms are heated by a panel system installed in the ceilings; private offices have conventional radiators. Throughout, the detailing has been handled to provide a genial, unobtrusive background for the exhibits and the visitors—a dignified, beautiful environment for the cultural and social center of a community.



MUSEUM AT LINKOPING, SWEDEN

NILS AHRBOM and
HELGE ZIMDAHL
Architects



SIMPLE BACKGROUNDS emphasize the displays. View above is of ground-floor galleries.

THE MEETING HALL is used for lectures, concerts, and discussion of popular problems. The perforated natural pearwood walls assist acoustical correction. Notice the brass light fixtures with pierced borders that lessen contrast. Seats, upholstered in dark red textile, may be removed for occasional use of the room as additional exhibit space. At such times the stage is joined with the rest of the hall by temporary flooring extending over the first six seat rows.

Svenska Dagbladet

THE MUSEUM is placed at the end of the city's main boulevard. Eventually three other wings will form an enclosed courtyard.

Goren Algard Photos

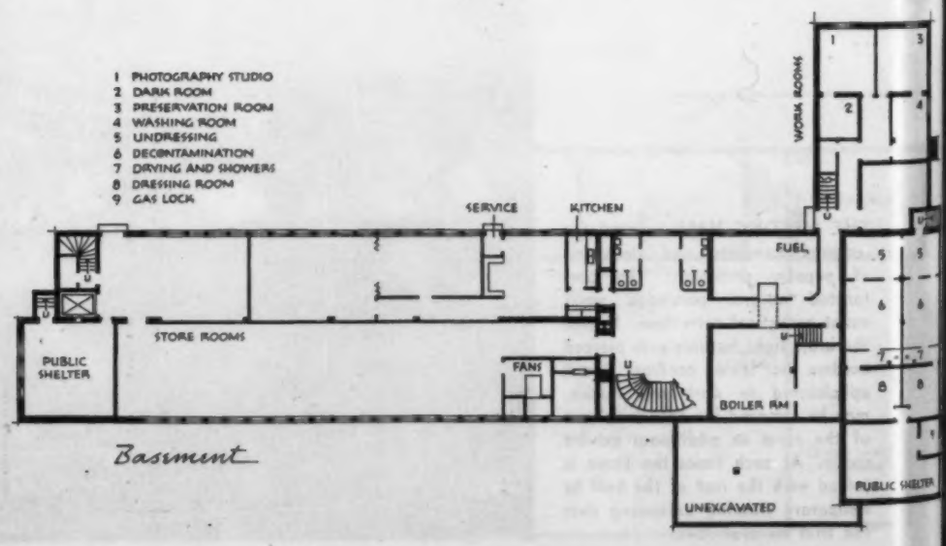
A freestanding SHELTER-REFLECTOR at the main entrance.

ENTRANCE HALL: gray marble floor; white walls.

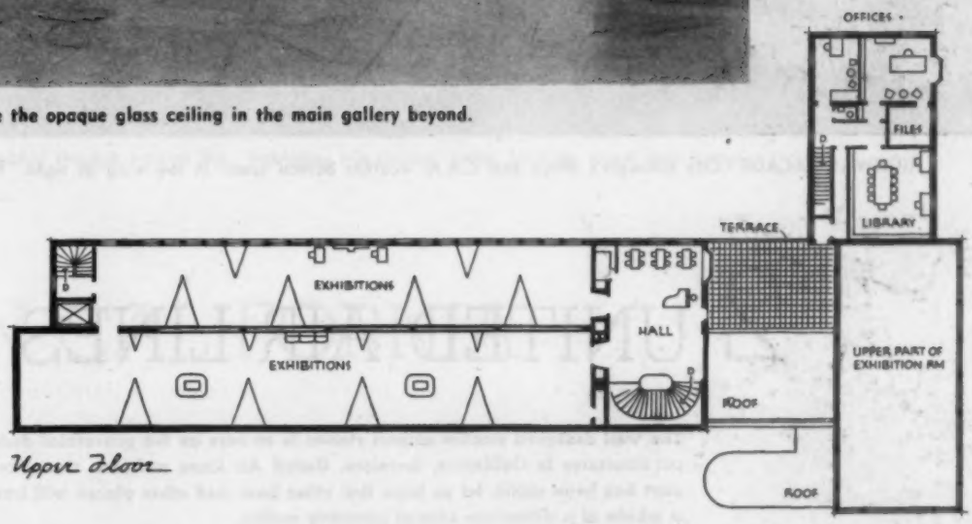
MUSEUM AT NORRKOPING, SWEDEN

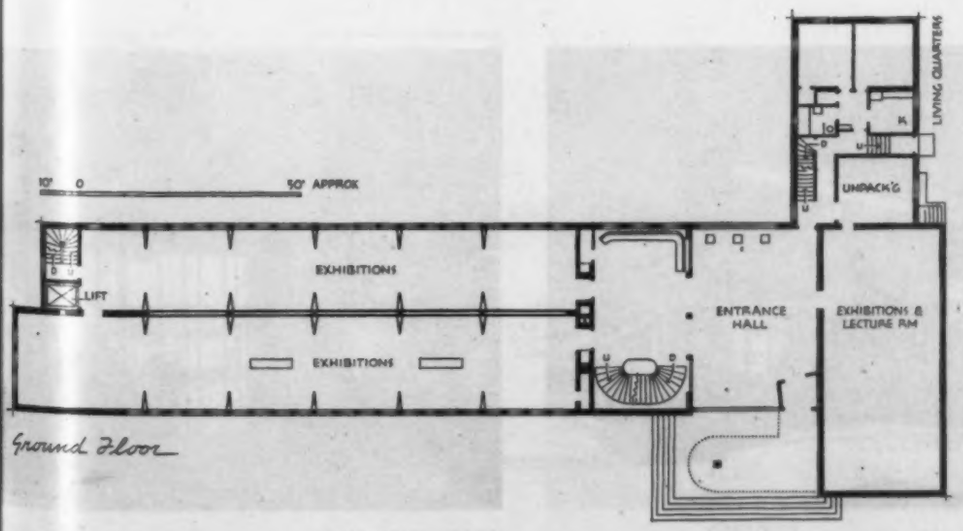
KURT VON SCHMALENSEE, Architect

The Norrkoping Museum is as much concerned with local history and the city's industrial interests as it is with its collection of Swedish art. In the words of Major Frank Bensow, chairman of the museum committee: "We have particularly tried to avoid making it a depository of the traditional type, aiming instead at creating a living museum, a vital and continually active cultural factor in the community." Interesting instances are inclusion of an industrial art section, the archives of the city labor unions, and generous premises for study groups and youth club activities. Eventual development of the museum contemplates an enclosed central courtyard of which the present structure will constitute one side. In downstairs galleries, lighting is from wall windows; upstairs galleries are lighted from an opaque glass ceiling that receives its light from clerestories in the walls overhead. Wedge-shaped display screens provide much added wall space as well as gain the advantage of lighting from an angle. An exceptional design element is the colorful, three-floor-high mural bordering the main stair. This mural, by Nils Wedel, includes copies of several of Wedel's best known paintings (see photo, bottom left).



UPPER LOBBY; also used for musicales. Note the opaque glass ceiling in the main gallery beyond.





HIGHWAY FACADE. City manager's office and C.A.A. weather bureau space in low wing at right. Walls are variously of brick or wood.

2 UNITED AIR LINES PASSENGER STA

The well designed smaller airport station is as rare as the proverbial dodo. With these two clean-cut structures in California, therefore, United Air Lines makes a signal contribution. Now that the start has been made, let us hope that other lines and other places will have the vision to see what a whale of a difference ccre'ul planning makes.

Roger Sturtevant Photos

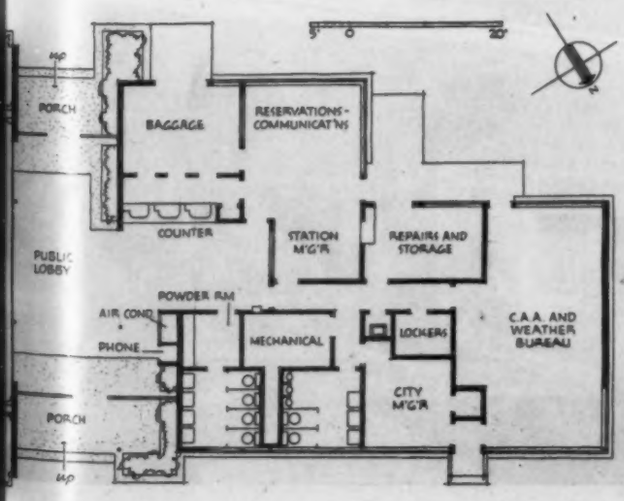
FIELD SIDE. Baggage room is through double doors at center.

STREET ENTRANCE.

LOBBY. If expansion is needed, wing will be added through wall at left. Insulating tile ceiling; walls: brick or board and batten.

STATIONS IN CALIFORNIA

FRANKLIN, KUMP & FALK, Architects



Floor Plan

1. STATION AT MODESTO

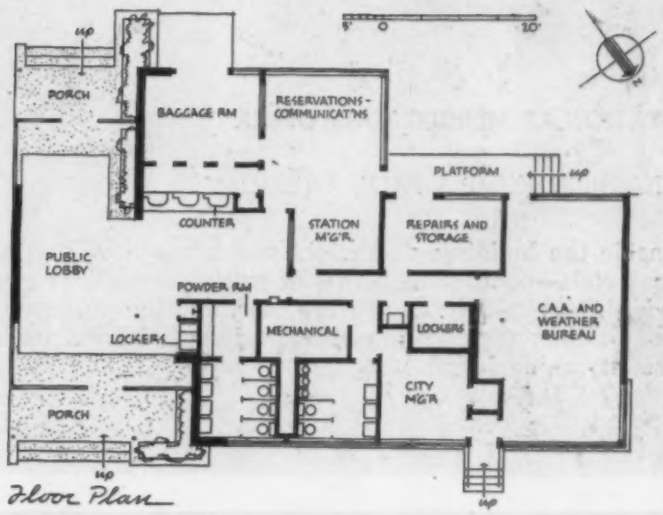
At both Modesto (these two pages) and Merced (three pages following) logical acknowledgment is made of the fact that an airport station has two fronts of equal importance—toward the field and toward the highway. They also assume that people in an air station enjoy watching things on the field and in the sky; hence, there are many and (toward the field) high windows. The other provisions for passengers and personnel are handled in a similarly straightforward way. The plans of the two buildings are almost identical; however, the owner requested that the Modesto station be made to differ in appearance from the one at Merced—to the detriment of the former, in our opinion.

HIGHWAY SIDE.

Roger Sturtevant Photos

FIELD SIDE.

ENTRANCE DETAIL



Floor Plan

2 UNITED AIR LINES PASSENGER STATIONS IN CALIFORNIA

FRANKLIN, KUMP & FALK, Architects

2. STATION AT MERCED

Although the plan is almost the same as that for the Modesto station, its expression in finished design (nearer to the architects' original concept for both buildings) seems considerably clearer, not to mention the dramatic and appropriate use of a dihedral roof. This emphasizes both fronts equally and facilitates a view of sky activities. One wonders if the over-all design might not have been yet further unified, if this roof line had been carried the full length of the building. Floor construction in both buildings is a concrete slab, within which are embedded copper coils for a radiant panel heating system. All sash are of steel.

Both Merced and Modesto are municipal airports; hence the office for the city airport manager. United Air Lines leases the plots from the cities. At present, in addition to a growing air mail and cargo business, the ports are used simply as feeder lines, with a single northbound and one southbound passenger flight each day. They are built, however, to accommodate eight to ten daily schedules each way and U.A.L. has leased sufficient land to handle this increased traffic. The ports are only about two miles from their respective cities, so eating concessions were considered unnecessary.

LOOKING TOWARD TICKET OFFICE; station manager's office, right. Note the plant border that (along with the brick wall) continues beyond the window wall.

FIELD ENTRANCE. The upsloping roof provides an unhindered view for visitors.

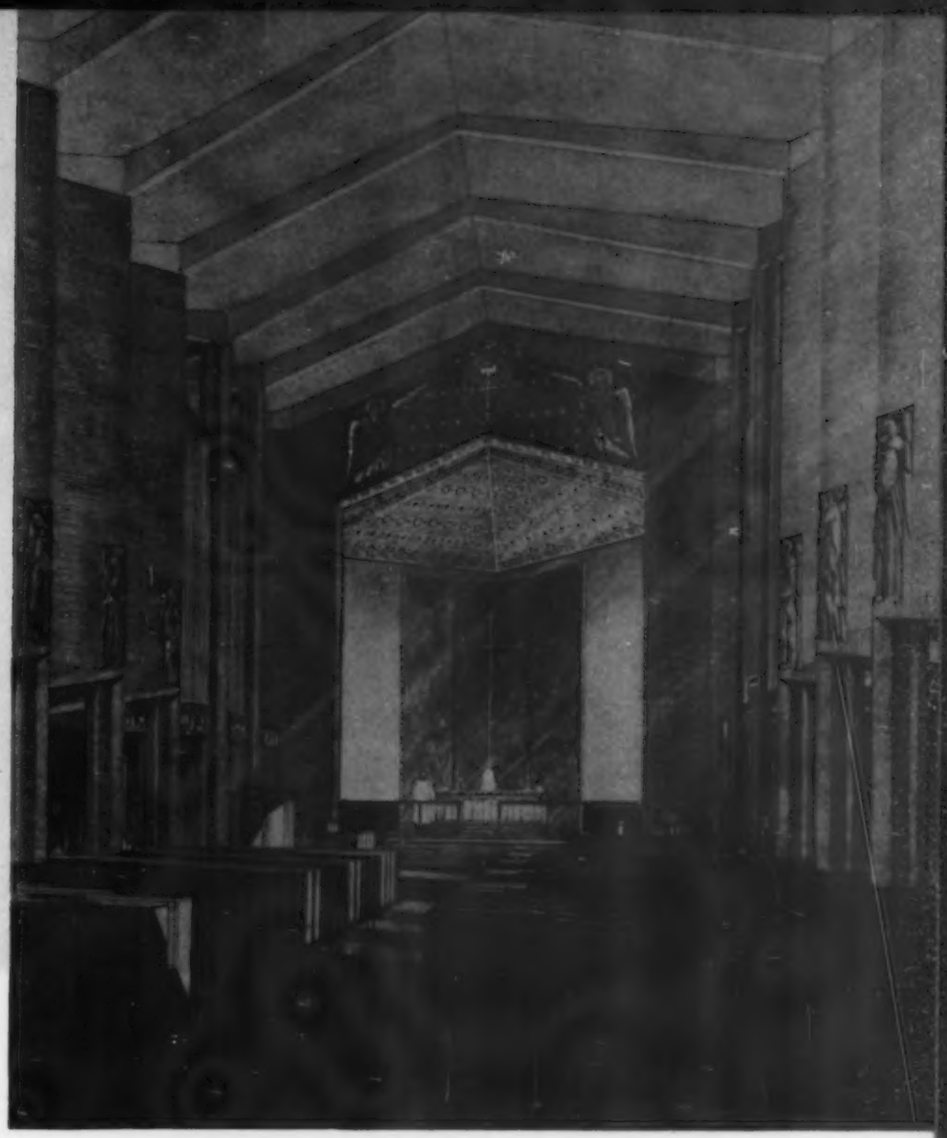
STATION AT MERCED, CALIFORNIA

FRANKLIN, KUMP & FALK, Architects

Inside the building, forthright use is made of just a few materials—continuous planes of brick, plywood, or gypsum board. Asphalt tile covers the floor, and the ceilings are of composition tile. The wood-framed roofs have 4 inches of wool-type insulation.

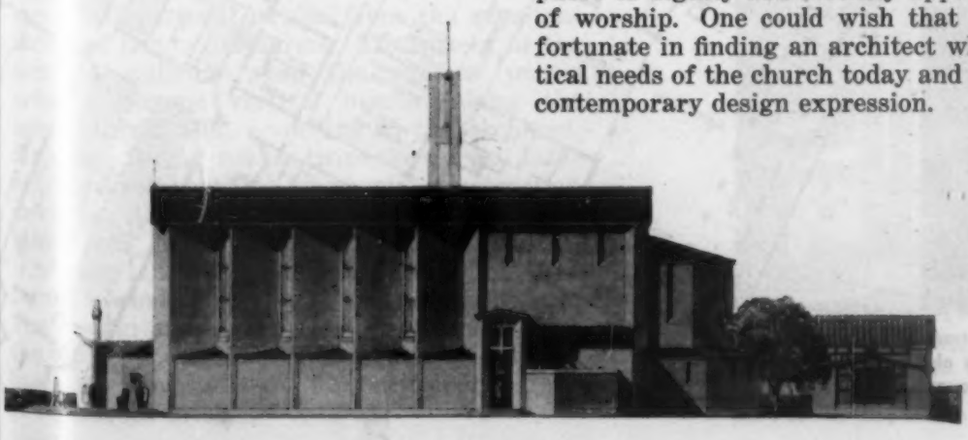
LOOKING FROM THE PASSENGER LOBBY out to the landing field. The yard enclosure provides additional visitors' space.

RALPH C. FLEWELLING
& ASSOCIATES
Architects



PROPOSED EPISCOPAL CHURCH, RIVERSIDE, CALIFORNIA

The distinguished design of this proposed church and parish house derives from precisely the same sort of intellectual and architectural honesty that has typified important ecclesiastical building of all times. Building materials are used imaginatively to achieve a result that is as logical in a structural sense as it is satisfying esthetically. The over-all design soars beyond mere function to produce an atmosphere of dignity and serenity appropriate for the individual exercise of worship. One could wish that more congregations were equally fortunate in finding an architect who understands both the ecclesiastical needs of the church today and the basis for developing a genuine contemporary design expression.



THE SERRATED SIDE WALLS of the nave produce a distinctive interior, with a series of triangular vertical prisms, pierced at the base by side aisles. The concept is far from purely esthetic, however; see next page for its lighting, acoustical, and structural properties.

CHIMES TOWER, a triangular reinforced brick pylon supporting the chimes above possible interruption of sound waves by adjacent building walls.

A CLOISTER forms one side of the forecourt to the parish house-auditorium.

FROM THE CLOISTER, across a planted space to auditorium entrance.

THE SHAPE of the church building is traditional, even to a cruciform plan; it is also oriented conventionally, with the altar toward the east.

Baskerville Photos

PROPOSED EPISCOPAL CHUR

Floor Plan

. CHUR IVERSIDE, CALIFORNIA

RALPH C. FLEWELLING & ASSOCIATES, Architects

Major determinants of the structural-esthetic design scheme were provision of proper lighting, acoustics, and resistance to earthquake shocks. The serrated side walls solve all three of these problems: windows in the forward panel of each "sawtooth" throw light toward the sanctuary over the shoulders of the worshippers; the broken wall shape helps acoustical correction; and a rigid, earthquake-resistant structural pattern derives from the resultant series of triangular forms. The spaces in the serrated walls between the window panels actually become vertical beams taking the lateral thrust and, according to the architect, distribute it over nearly twice the normal load-bearing area obtained by normal construction methods. A rigid frame is produced by monolithic roof beams and slab, terminating in triangular shaped sections spanning the area between window panel and vertical wall beam. The result: a series of vertical prisms tied at the top by the rigid roof structure and at the base by a concrete slab. Masonry portions are of reinforced brick.

THE SITE is a 4-acre tract at the intersection of two streets, with the land sloping up from the more important street and the north portion of the land dropping off to a deep arroyo. Thus the church has a commanding outlook in all directions.

GENERAL VIEW.

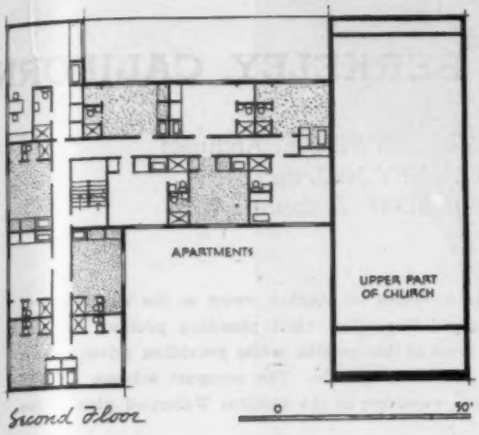
CHURCH OF THE PEOPLE, SEATTLE, WASHINGTON

This unusual proposed building combines the functions of worship and housing. The problem was to house a liberal independent congregation whose creed is one of world brotherhood. In addition to an auditorium for discussion and formal worship, the need was for living quarters for members of racial minorities who are students at the near-by University of Washington.

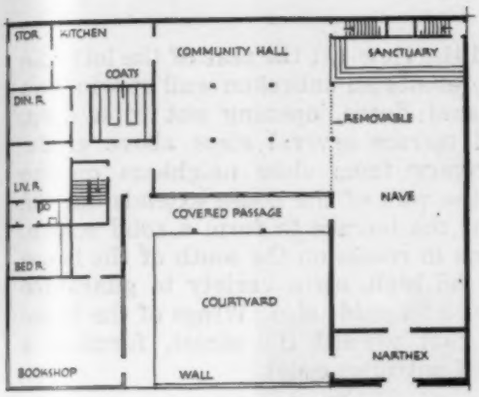
Conceived as a small international center, the project consists of two main parts—the meeting house proper, which will accommodate lectures, motion pictures, and some drama in addition to its use for worship, and a group of one-room apartments, to be made available to students from other lands for whom living accommodations appear to be somewhere between undesirable and nonexistent. To round out the program, the proposal includes a community hall and kitchen, supervisor's apartment, lending library-reading room, and office space for various social organizations.

Arranged around a walled courtyard, the building has its public-use rooms all on the first floor; apartments occur on the second floor of the left-hand wing and on the second and third (and possibly a later fourth) floors of the connecting block at the rear. Local brick is suggested for the walls of the building, with a symbolic sculptured group above the main entrance to the church.

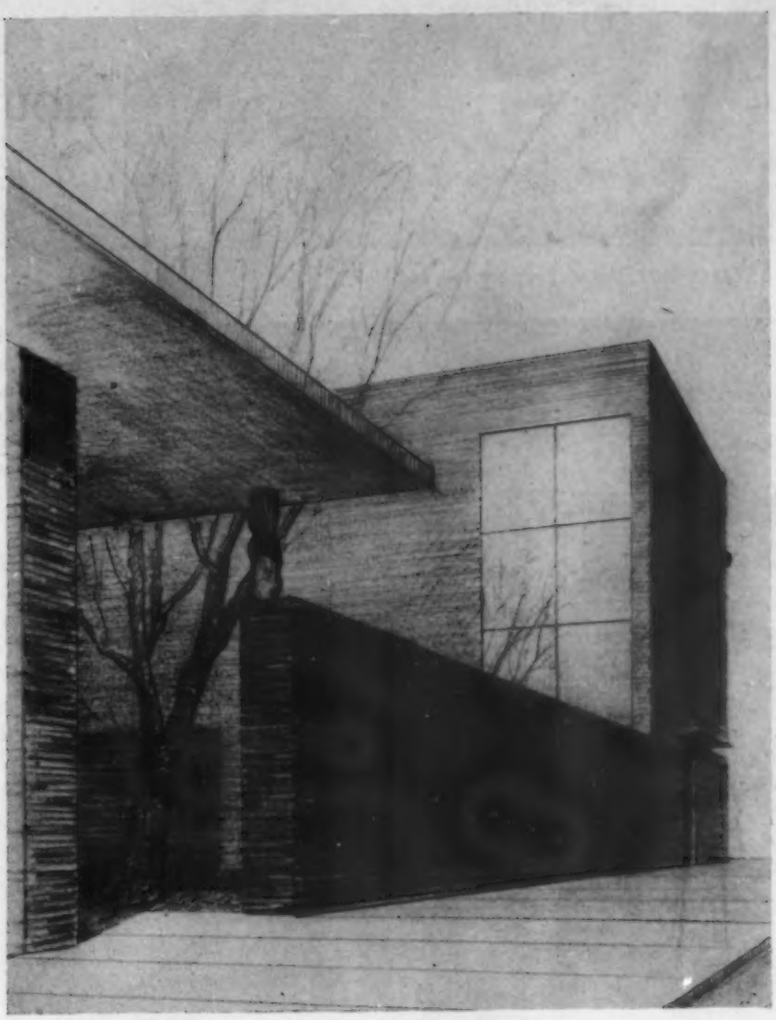
PIETRO BELLUSCHI
Architect



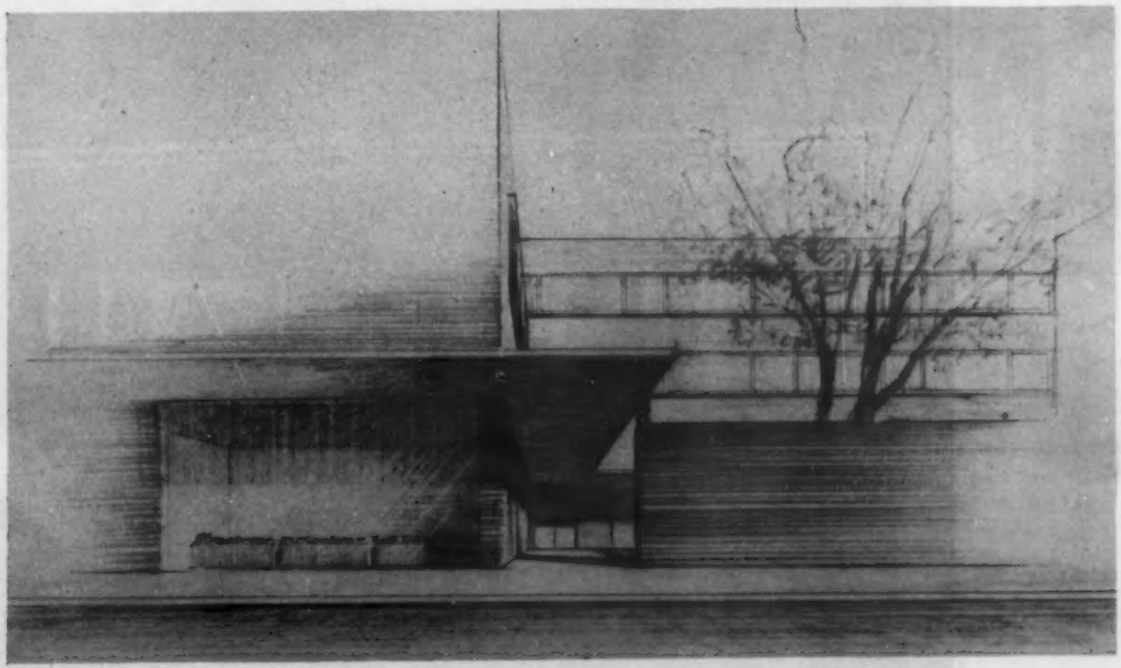
Second Floor



Main Floor



THE HIGH WALL of the courtyard with church in background.



ENTRANCE DETAIL; apartment block at rear.

ON THE STREET SIDE, the windows are few and high.

HOUSE, BERKELEY, CALIFORN

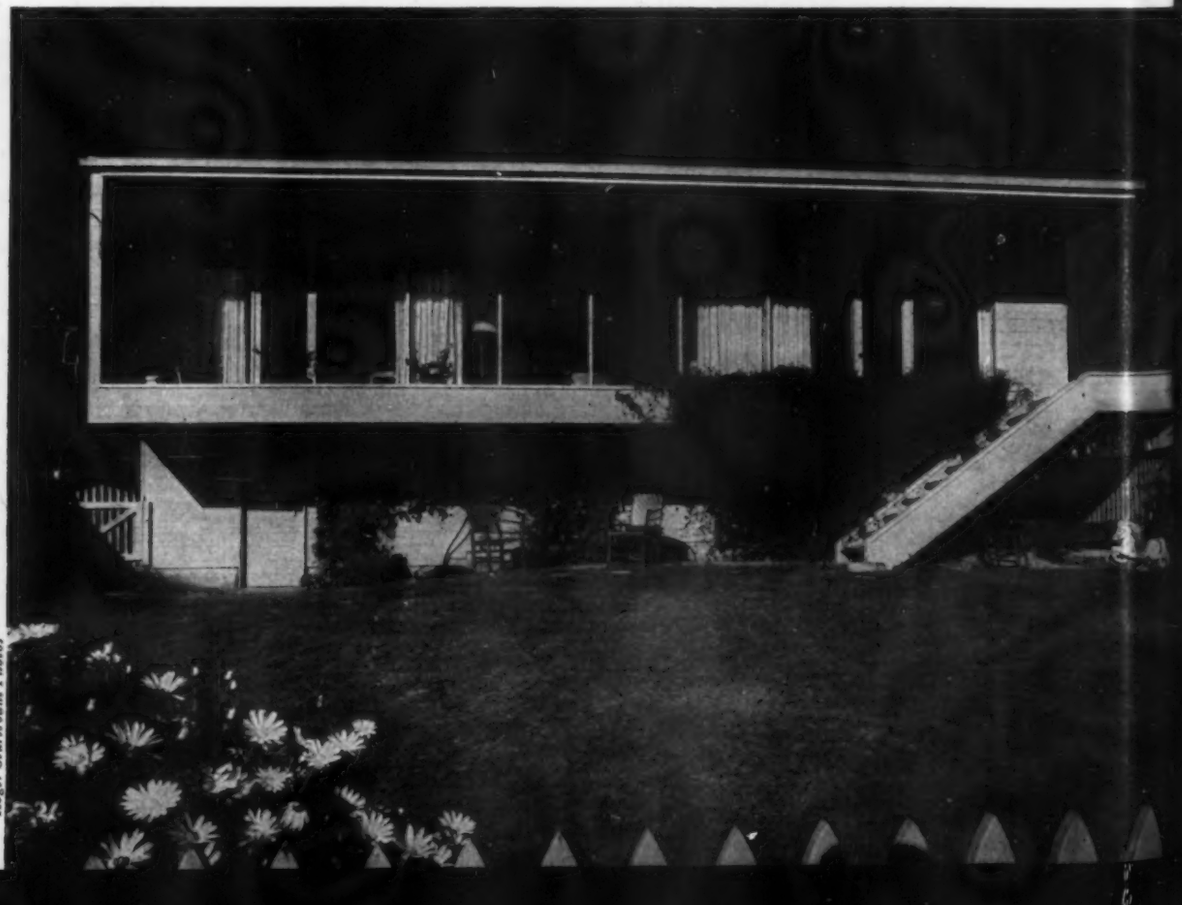
JOHN EKIN DINWIDDIE, Architect
ALBERT HENRY HILL and
PHILLIP JOSEPH, Associates

The site is a 50-foot lot sloping away to the vast view of San Francisco Bay. The chief planning problem was to make the most of this outlook while providing privacy for a house in a built-up section. The compact scheme built in a distinctive variation of the familiar U-shaped plan is the result.

Toward the view (at the rear of the lot), the house presents an unbroken wall of windows and glazed doors, opening out to a deep, covered terrace several steps above grade. For privacy from close neighbors on the north, the wall of the house extends out the depth of the terrace to form a solid screen. Windows in rooms on the south of the house are of the high, strip variety to guarantee privacy on this side also. Wings of the house extend east toward the street, forming a sheltered entrance court.

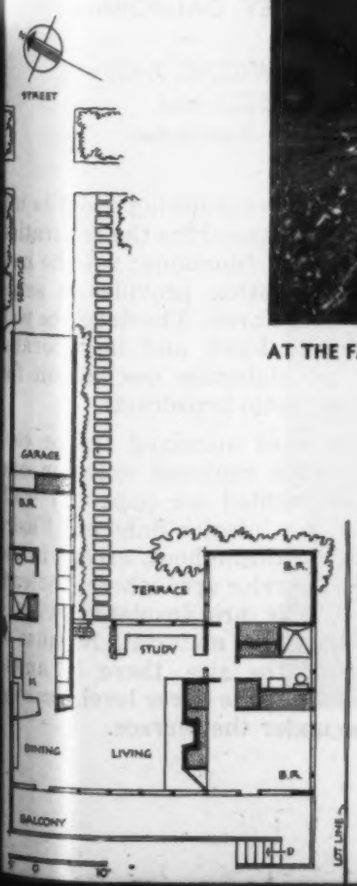
CAREFUL PLANTING gives privacy to the entrance court.

ON THE VIEW SIDE, the house is wide open; an outside door at the lower level opens into ample storage space.



Roger Sturtevant Photos

AT THE FAR END of the terrace is the screen wall providing complete privacy from the house next door.



Among the plan refinements are the built-in study unit in a secluded corner of the living area; a pass window and work counter between the dining end of the room and the kitchen; a sit-up serving bar for children's quick meals on the south wall of the kitchen; and the extra room—maid's room, workroom, or guest room—between the kitchen and garage. To interrupt the view as little as possible, a low curb plus plant tubs are used at the edge of the terrace in place of a railing.

Looking toward the concrete block fireplace end of LIVING ROOM; between the masonry and the window wall is a panel of obscure glass. . .

Entrance door at left; study corner (built by the owner), right background.

The pass window to the kitchen occurs over a pair of storage cupboards.

HOUSE, BERKELEY, CALIFORNIA

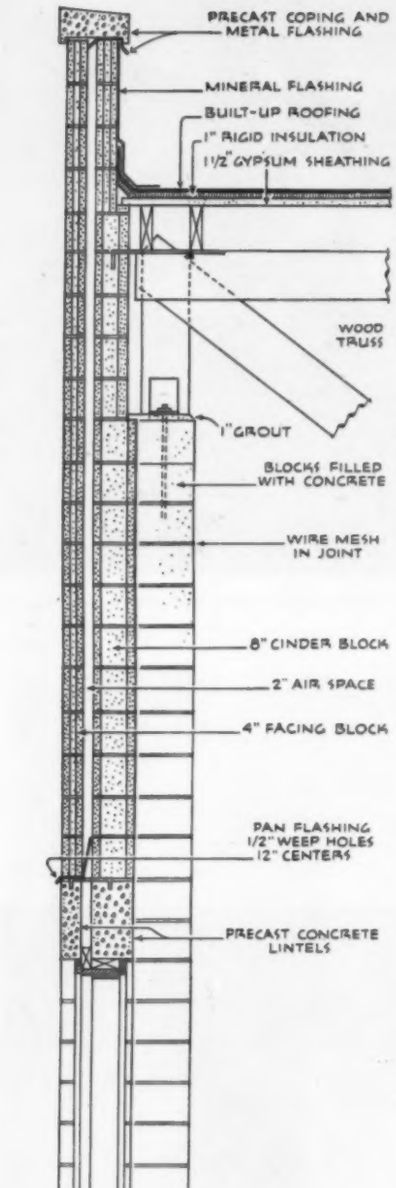
JOHN EKIN DINWIDDIE, Architect
ALBERT HENRY HILL and
PHILLIP JOSEPH, Associates

The combined living-dining room is unusually well arranged for the separation of the two main functions; yet the continuous fenestration provides a sense of a single large area. The fireplace wall is of concrete block and incorporates within it an elaborate mechanism for reception of radio broadcasts.

The house is of standard frame construction, with redwood exterior and plywood or painted (or papered) wallboard used for interior finishes. Floors are hardwood throughout, except in the kitchen and service area where linoleum is used. Walls are insulated with 4 inches of batt-type material. Because of the slope of the site, there is ample storage space at the lower level, reached by a door under the terrace.

Toward the dining end, the windows frame a view of the Bay; during late afternoon glare, translucent white curtains are drawn across.

THE OWNERS' BEDROOM shares the view with the main living rooms; notice the storage wall at right.



WALL SECTION: Army Post Office, Long Island City. Alfred Hopkins and Assoc., architects. Cavity continues into parapet; piers support trusses clear of wall.

CAVITY WALL CONSTRUCTION

By BEN JOHN SMALL

THE AUTHOR of this article is an associate (in charge of specifications) in the office of Alf Hopkins & Associates, architects. This firm has used cavity wall construction for more tha decade, in many millions of dollars of peacetime and wartime structures, from small lo bearing buildings to multiple-story units. Mr. Small adds to this experience considerable stu of cavity wall principles as applied by other designers in this country and abroad.

Successful History

Why do architects tolerate wet walls when cavity walls can be designed to work well? With more than forty-five years of experience in Great Britain, Nova Scotia, and Australia to study, and with successful designs in this country that have functioned for at least half that time, it is difficult to understand why the use of cavity wall construction is not more widespread.

The articulate British construction press reports that no case of moisture penetration through properly designed and constructed cavity walls has ever been brought to the attention of their British Research Station. Martin S. Briggs, F.R.I.B.A., in the December 1946 iss of *The Master Builder* said, "A cavi wall, properly built, is as near wate proof as anything can be." In th country there is similar testimony. Ma favorable comments will be found *Technical Bulletin No. 14* published the Brick Manufacturers Association New York, Inc. The Southern Bri Manufacturing Association advocat cavity wall construction, properly d signed. Fred N. Severud, prominen structural engineer, states, "The tw fold advantage of the cavity wall i first, that there is enough separati between the inside and outside wall that each can follow its natural tren and, second, that the connections in degree are elastic."

JOHN LOVEJOY ELLIOTT HOUSES: New York City Housing Authority. William Lescaze and Archibald Manning Brown, architects. Multi-story cavity walls are proposed.

In 1944, the U. S. Army constructed the world's largest post office in Long Island City, New York. Its 14-½ acre structure is enclosed with 14" load-bearing cavity walls. The outer wythe is 4" thick, of three shades of integrally buff-colored cement-sand concrete block, and the inner wythe of 8" thick cinder concrete blocks. It is interesting to note that this mammoth structure was ready for workable occupancy within the amazingly short period of 72 days. 390,-000 concrete blocks were used. Another example may be seen at the U. S. Public Health Service 400-bed hospital at Sheepshead Bay, New York *(Pencil Points*, April 1944). An interesting 10" cavity wall on concrete frame structure will be used in the proposed 13-story Nurses' Residence and School at Bellevue Hospital, New York (same issue, *Pencil Points*).

The U. S. Government is currently constructing its first 10" cavity wall penitentiary. The flexibility of cavity wall construction is in this instance demonstrated by the architect's requirement that the inner concrete block wythe be reinforced with steel rods and poured concrete for security purposes.

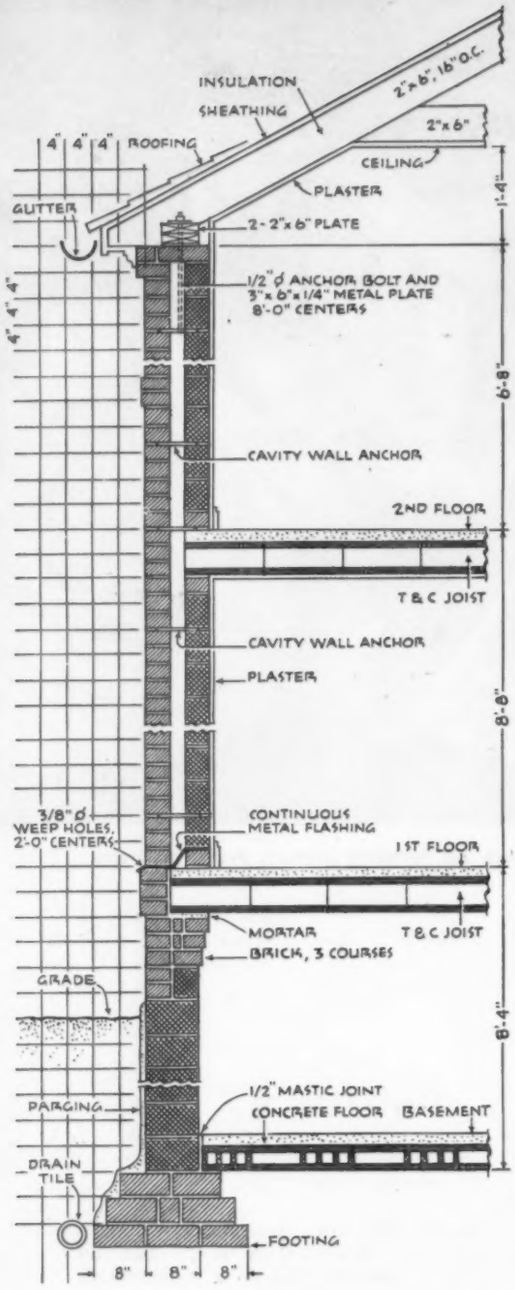
Apartment houses in both England and the United States have successfully used cavity wall construction. The largest block of apartments in Europe, located at Dolphin Square, London, England, rising 9 stories high on a reinforced concrete frame, has cavity masonry walls. In this country an excellent apartment house example is found in the 7-story, Rockliffe Apartments in Montclair, New Jersey, with a 10" cavity wall on a concrete frame.

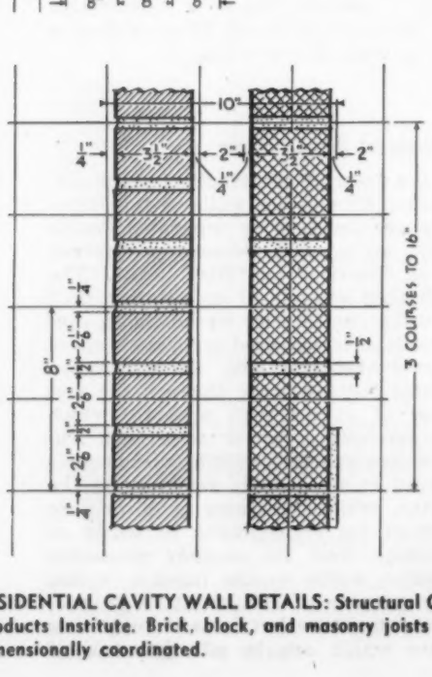
In New York City many of the largest architectural firms have cavity wall designs on their boards for an imposing variety of structures. Certainly experience with true cavity wall construction in this country has now been sufficiently broad to insure impermeable wall assembly design. The records indicate that where local penetrations of water and moisture have occurred in cavity walls they have invariably been caused by faulty design or careless construction.

In view of current uncertain building costs it would be unsafe to attempt to appraise the cost differential between cavity and solid walls with comparable bearing and heat transmission characteristics. However, a large housing project recently effected a considerable saving per apartment by accepting a cavity wall alternate bid.

Types of Assemblies

In the form of construction under discussion, all exterior walls of the structure are designed as separated double walls, an assembly sometimes referred to as "barrier" or "dual" walls. The wall then consists of an exterior shell or wythe, an interior wythe, and a continuous unencumbered vertical air space or cavity between them. The wythes are bonded together only through the medium of cavity wall anchors, which are specially designed metal ties. Anchors are provided with a twist or a V-shaped crimp, located centrally in the cavity, which functions as a drip to prevent the transmission of water or moisture from the possibly permeable exterior wythe to the interior wythe. The purpose of the cavity is to provide a moisture barrier and insulating space which can be effective only if





RESIDENTIAL CAVITY WALL DETAILS: Structural Clay Products Institute. Brick, block, and masonry joists are dimensionally coordinated.

there is no bridge of solid material at any point across the cavity. In order to permit the escape of any moisture which may permeate the exterior wythe and enter the cavity, strategically located small "weephole" apertures, spaced at regular intervals, are provided. Such weepholes serve as drains in the exterior wythe for the expulsion of water which is usually redirected by gravity flow to the exterior by means of sloped flashings.

Exterior wythes may be of any material that is suitable. They might be face brick or stucco on common brick; limestone, granite, marble, and combinations of stone and brick backup; precast concrete slabs; masonry blocks which may be stuccoed, painted, or integrally colored; or stuccoed structural clay tile. Thickness can vary in accordance with structural requirements; the wythe may be load-bearing or non-load-bearing.

The air space or cavity might be from 2" to 6" in width; the important thing to remember is that it should extend from above ground level up to and into the parapet wall. The 2" width is most commonly used. Air spaces have sometimes been filled with various types of insulating and other materials, such as vermiculite, mineral wool, glass wool, bituminous preparations, waterproofed cement mortar, cellular glass, and the like. These are not true cavity walls, and the plugging of the cavity obviously jeopardizes the watertightness of the assembly.

Interior wythes may be of brick directly plastered (without dampproofing) or left exposed; plastered, painted, or integrally colored masonry blocks; plastered or painted precast concrete slabs; concrete, brick, or masonry blocks faced with insulating materials and plaster. Again the thickness will vary depending on the structural requirements.

The interior wythe may be load-bearing or not, depending on the design. A typical insulation assembly for the interior might consist of 2" by 2" furring strips, fastened to the masonry on 16" centers, between which would be placed 1¾" blanket insulation, covered with a vapor seal, plasterboard, and plaster.

Needless to say, cavity wall assemblies may and should be dimensionally coordinated. Modular masonry products now becoming available adapt themselves well to cavity wall detailing.

One advantage of the cavity wall principle is that it makes possible the use of highly permeable materials such as concrete block. Smooth, gray concrete masonry units are suitable for exterior walls as well as interior, since the surface is receptive to paint. Integrally colored, perhaps specially textured concrete blocks can be used without painting. Cinder concrete blocks are particularly suitable for walls which are to have wood or metal furring, since they receive and hold nails well. Thus the lightweight, acoustical properties and comparative cheapness of such a material become available with no danger of wet walls.

One thing that may be restraining wider use of the cavity wall is a feeling that design possibilities are limited by it. Actually, great flexibility in use is possible. Either the exterior or interior wythe may be load-bearing. In the case of multistory structures the cavity wall may be a self-supporting curtain wall used with a skeleton frame. Always the principle is the same: a double wall with an unobstructed air space.

The Anchor

The exterior and interior wythes must be bonded together in order to develop lateral strength and to exert concerted action under loads. Bonding is best achieved by means of metal cavity wall anchors. (The British call them "cavity irons.") There are available an innumerable variety of anchors. In selecting the appropriate type, one need be concerned with three criteria: Is the metal noncorroding? Does it meet the strength requirements? Is transmission of water between the wythes prevented?

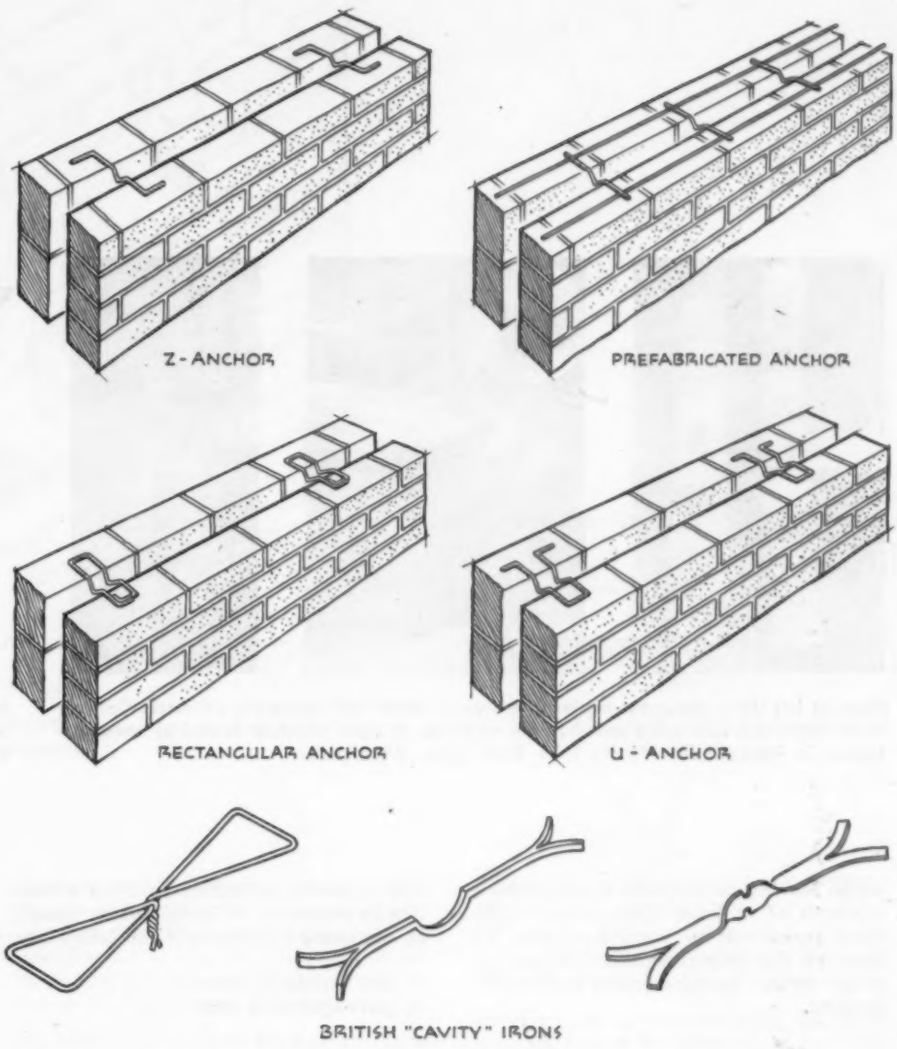
In answer to the first question, satisfactory anchors are made of solid copper, commercial bronze, silicon bronze, monel metal, and steel which has been asphaltum painted, galvanized, or hot-dip galvanized after fabrication. A bimetallic anchor is available consisting of a cold-drawn, high-tensile-strength alloy steel core over which copper is welded. Anchors cement-coated with Portland cement grout can also be obtained, but the slight danger of moisture transmission by capillarity may mitigate against their use. Galvanized anchors in thirty- to forty-year-old installations which were exposed by bomb damage in Great Britain showed little or no deterioration. However, since some nonferrous anchors are only slightly higher in cost than the other types, their use would seem to be preferable.

The determination of strength requirements is an engineering problem, and any unusual situation should be carefully checked. The most popular anchor, satisfactory for most purposes, is the commercial bronze, ¼" diameter, drip-type Z-rod, 8" in length with 2" legs. There are Z-shaped, U-shaped, and rectangular anchors, and the so-called prefabricated anchor which is a grid consisting of No. 10 wires, 6" apart, laid upon and paralleling each wythe, to which is welded No. 8 wires, 8" long, spaced 12" apart. In the not too distant future we shall probably see a new type of anchor precast within a masonry block which simultaneously forms the inner and outer wythe unit.

The third question—passage of moisture—is an important one. Early anchor types served as moisture bridges; some did not contain drips; others served as

perfect shelves for mortar accumulations. Subsequent designs overcame these disadvantages, particularly the Z-rod which, in addition to its drip feature, offers a minimum horizontal area for the depositing of mortar droppings. Regardless of the type used, specifications should include a prohibition against placement of anchors which pitch toward the inner wythe.

With reference to the spacing of anchors, recommendations vary considerably. As an illustration, the New York City Administrative Building Code requires "one to every four square feet." Great Britain's Building Research Station recommends the spacing to be 3′-0″ horizontally and 1′-6″ vertically. The Structural Clay Products Institute recommends generally one anchor every three square feet of wall surface or where the cavity does not exceed 3″ in width, not over 3′-0″ horizontally nor over 1′-4″ vertically, and in addition recommends placement of additional anchors within 8″ of all openings, bottom of beams, joists, or slabs resting on the wall. Regardless of spacing, it is well to stagger all anchors excepting around openings.



VARIOUS TYPES OF CAVITY WALL ANCHORS now available.

The Weephole

On the assumption that water may permeate and run down the back of the exterior wythe, or that condensation may form in the air space, weepholes which function as drains should be provided at flashing levels and at all other horizontal interruptions of the cavity space. For example, at continuous shelf angles, isolated lintels, tops of foundations above grade, and the like, any water within the wall should be redirected to the exterior. If mortar joints are impermeable, it is relatively unlikely that weepholes will show activity; so much the better. Since the labor factor in weephole forming is of small consequence, their use is more than warranted. In brickwork, weepholes are spaced arbitrarily 24″ to 48″ apart horizontally. In concrete block masonry, the practice has been to locate weepholes every 2 or 3 units apart and every unit apart at lintels.

Weepholes may be formed in concrete block masonry in several ways, usually by inserting pencil rods, sash cord, wood lath, or pipe in the mortar joint, to be extracted when the mortar has set. Pencil rods and pipe, because of their ferrous nature, may stain masonry. Wood lath usually swells and becomes difficult to remove. Hence the use of sash cord seems to present more advantages than the others. By permitting the cord to extend generously into the cavity and project beyond the exterior face of the outer wythe for easy removal, one is assured of a clear weephole despite overlooked mortar droppings. Formation of weepholes in brickwork is effected simply by the omission of mortar from the affected vertical joint.

Keeping the Cavity Clean

The technique of keeping the cavity and tops of anchors clean during the course of wall construction is quite a simple one. It involves nothing more than the use of a strip of wood, 1″ thick by 2″ wide by several feet long, to which heavy string or wire is attached at the ends. The strip is laid upon the anchors in a manner permitting its 2″ width to bridge the cavity. Before placement of a course of anchors, the strip is raised by means of the attached strings or wires, cleaned of its droppings, and then deposited on the new set of anchors.

To make doubly certain that the cavity is not bridged by mortar accumulations, it should be cleaned at flashing levels or lowest points by means of a field-improvised long-handled rake provided with a 2″-wide steel or wood head. To facilitate such cleaning, the rake is inserted through temporary openings which should preferably be located at corners where walls change in direction.

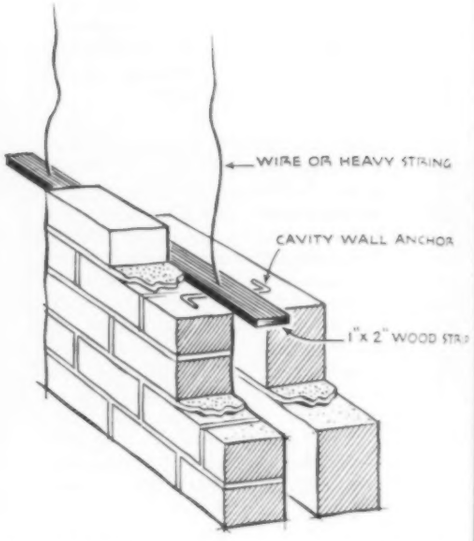
Inspection of cavities for cleanliness may be made through the same temporary openings or other similar openings left at frequent intervals for this purpose. Masons learn quickly how to lay up the wythes without dropping mortar in the cavity, thereby making the process of cleaning unnecessary. One cannot overemphasize the fact that the effectiveness of the cavity, insofar as impermeability is concerned, varies in direct relation to its cleanliness. Specifications should include a statement somewhat as follows: "The Contractor's attention is particularly called to the fundamental principle of cavity wall construction which depends on a cavity which is perfectly clean and clear except for anchors. Mortar droppings caused by careless workmanship may form a bridge across which water is transmitted to the inner wythe. This must be carefully avoided."

The Mortar

High strength, good plasticity, water retention, and bonding properties are basic mortar requirements for cavity

Brick Mfrs. Assn. of N. Y.

Photo at left shows dangerous mortar droppings in cavity wall improperly protected. Center Photo shows sash cord being removed from weephole. *At right,* weephole formed by omitting mortar in vertical joint. Photos from Brick Mfrs'. Association.



Mortar drippings in cavity can cause leakage through wall. A board pulled up to rest on wall anchors is a simple precaution.

walls. Mortar should have a compressive strength of at least 2500 psi for sufficient resistance to wind pressure. To improve the impermeability of the exterior wythe, concave joints are recommended.

For locations subjected to wind velocities in excess of 80 mph, mortar should be composed by volume of the following:

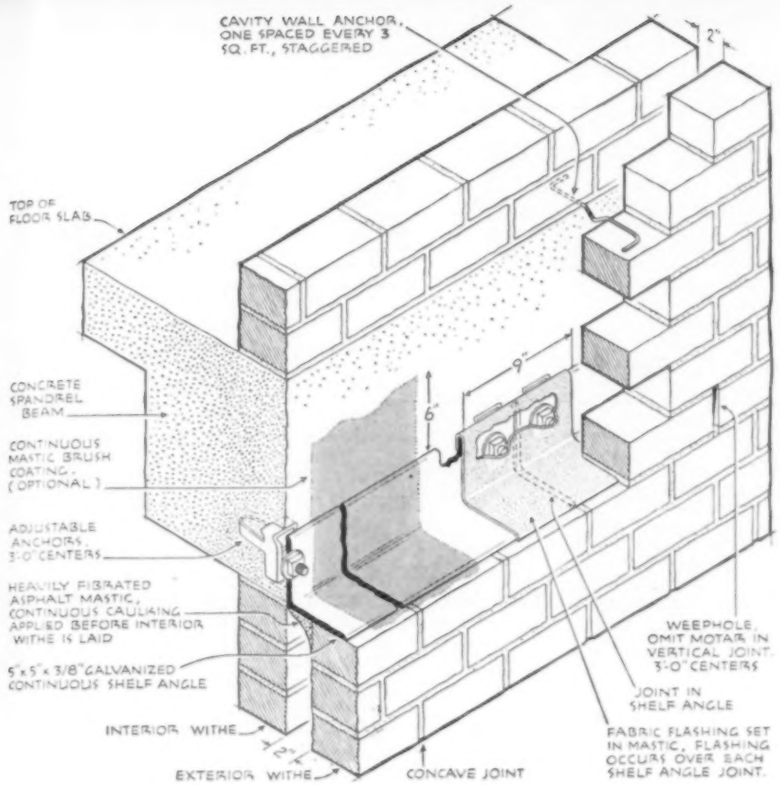
1 part Portland cement
¼ part hydrated lime
not less than 3 or more than 3-½ parts sand

For locations subjected to wind velocities less than 80 mph, the composition, by volume, should be:

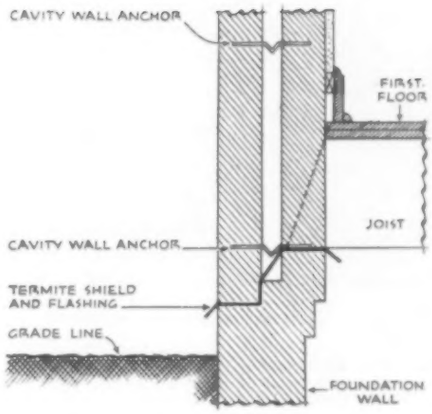
Construction Symbol	Weight	Load									
		Compressive[a]		Tranverse[b]		Concentrated		Impact[1]		Racking	
		Designation	Maximum load	Designation	Maximum load	Designation	Maximum load	Designation	Maximum height of drop	Designation	Maximum load
	lb/ft² face area		kips/ft		lb/ft²		lb		ft		kips/ft
Solid Brick Wall AB from BMS Report No. 5	73.9	*C1*	63.2	*T1*	53.3	*P1*	[c]1,000	*I1*	3.0	*R1*	[c]6.25
		C2	52.5	*T2*	38.0	*P2*	[c]1,000	*I2*	3.0	*R2*	[c]6.25
		C3	65.8	*T3*	53.2	*P3*	[c]1,000	*I3*	2.5	*R3*	[c]6.25
Average			60.5		47.9		[c]1,000		2.8		[c]6.25
			[a]*Kips/ft*		*lb/ft²*		*lb*				
Hudson River Brick Cavity Wall BD from BMS Report No. 23		Upper end, 3.12 in. from the inside face *C1*	62.6	*T1*	22.0	*P1*	[c]1,000	*I1*	3.0	*R1*	4.95
		Upper end, 3.12 in. from the inside face *C2*	61.7	*T2*	30.0	*P2*	646	*I2*	3.5	*R2*	6.03
		Upper end, 3.12 in. from the inside face *C3*	61.9	*T3*	24.0	*P3*	[c]1,000	*I3*	2.0	*R3*	6.00
		Average	62.1		25.3				2.8		5.66
		Upper end on backing only, centered on backing *C1a*	50.9								
		Upper end on backing only, centered on backing *C2a*	48.3								
		Upper end on backing only, centered on backing *C3a*	52.5								
		Average	50.6								

Footnotes
[1] Span 7′–6″.
[c] Specimen did not fail.
[a] A kip is 1000 lbs.

TABLE I. Strength Test data. Bureau of Standards Tests Sponsored by Brick Mfrs.' Association.


CAVITY WALL ANCHOR, ONE SPACED EVERY 3 SQ. FT., STAGGERED
2"
TOP OF FLOOR SLAB
CONCRETE SPANDREL BEAM
CONTINUOUS MASTIC BRUSH COATING (OPTIONAL)
ADJUSTABLE ANCHORS, 3'-0" CENTERS
HEAVILY FIBRATED ASPHALT MASTIC, CONTINUOUS CAULKING APPLIED BEFORE INTERIOR WITHE IS LAID
5"x5"x 3/8" GALVANIZED CONTINUOUS SHELF ANGLE
INTERIOR WITHE
EXTERIOR WITHE
CONCAVE JOINT
9"
6"
WEEPHOLE, OMIT MORTAR IN VERTICAL JOINT, 3'-0" CENTERS
JOINT IN SHELF ANGLE
FABRIC FLASHING SET IN MASTIC, FLASHING OCCURS OVER EACH SHELF ANGLE JOINT.

COMBINED FLASHING AND STRUCTURAL SUPPORT, for use in multi-story cavity wall construction. Alfred Hopkins and Assoc., architects.



FLASHING AT DAMP COURSE serves also as termite shield in this detail.

1 part Portland cement
1 part hydrated lime
not less than 5 nor more than 6-½ parts sand

Mineral coloring pigment should be considered for mortar used for setting integrally colored masonry block. Masons should be instructed not to cut off excess mortar in a manner which will pull it from contiguous surfaces.

The Flashing

As has been said, in cavity wall construction it is of prime importance to prevent water and moisture from reaching the outer surface of the inner wythe. As in solid wall construction, the heads of windows, doors, ventilating ducts, and all other wall penetrations must be flashed. An infinite variety of methods and materials are used for this purpose.

Flashing should be capable of flexible forming without damage to the material used. In addition, where flashings span the cavity, strength of material is an important consideration. Metallic flashings such as monel metal, solid copper, and light gage copper or lead in combination with other impervious flexible materials serve well, as do flashings of the steel reinforced fabric type.

Where continuous shelf angles are used, galvanized angles bolted to the spandrel face eliminate the necessity of any flashing material whatsoever, excepting for short lengths over the space where such angles abut each other. If an additional measure of protection is desired, galvanized angles may be given one good brush coat of mastic.

By designing so that the face of spandrel beams and columns are flush with the outer plane of the interior wythe, the need for spandrel and similar flashings is eliminated completely. This not only effects a saving in labor and materials, but maintains consistently a clear cavity at the perimeter of the structure.

To prevent the capillary rise of water into the wall from the soil adjacent to foundations, horizontal flashings, known as damp courses, should be installed a short distance above the grade line. These flashings, if metallic, could project beyond interior and exterior wall faces and easily serve as termite shields if their projections are turned down at a 45-degree angle.

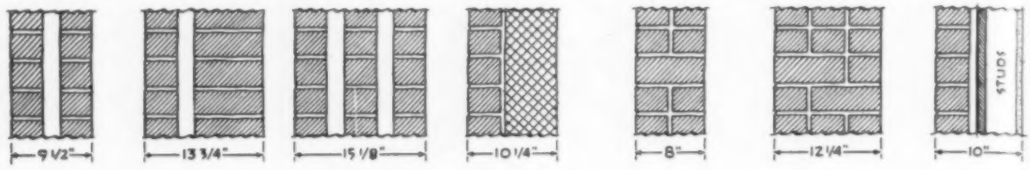
Structural Properties

Comparative compressive strength of cavity and solid masonry walls has been adequately tested, always to the advantage of the cavity system. Table I shows in tabular form a test made under the auspices of the Building Materials and Structures' research project at the National Bureau of Standards. Tests on Hudson River brick cavity walls were published as *BMS No. 23;* tests on solid brick walls as *B.M.S. No. 5.* Brick, mortar, and workmanship were comparable. The bricks averaged 3200 and 2700 lbs per sq in. in compression for the cavity and solid walls respectively, and the 1-1-6 mortar approximately 600 and 750 lbs per sq in. dry and wet cured.

Commenting on these results, the Brick Manufacturers Association, in its *Technical Bulletin No. 14,* states: "The New York City Building Code limits the allowable stresses on such cement lime masonry to 250 lbs per sq in. on solid sections. When the load is applied on the backing only, the 250 lb limitation would apply and this is approximately 12,000 lbs per lineal foot as compared to the 50,600 lbs per lineal foot shown in the test. In actual construction such loading would seldom exceed 4000 lbs. The 125 lb per sq in. limitation would apply if the load were placed on both front and back of wall and the gross area considered. This works out about the same, since the area is more than twice as great but the allowable load per square inch is reduced by one half."

Insulating Properties

If one were to consider heat insulation only, the most useful cavity width would be approximately ¾" to 1". In attempting to achieve such a width the risk of a clogged cavity with its resultant difficulties would be far too great. Where insulation is a critical factor, the interior surface of the inner wythe may be suitably insulated as previously described. It may be well to point out that 10" cavity wall, without applied insulat-



Inside Finish	*10" Cavity*	*14" Cavity*	*Double Cavity*	*10" Brick & Tile*	*8" Brick*	*12" Brick*	*Brick Veneer*
None	.300	.244	.200	.317	.420	.314	
½" Plaster	.290	.236	.194	.303	.395	.300	
Furring, Metal Lath. ¾" Plaster	.225	.191	.163	.233 .250*	.284	.231	.257**
½" Plaster on ⅜" Plaster Bd. Furred	.216	.184	.158	.223	.269	.222	.168***
Wgt. no int. finish	64.0#	100.0#	95.4#		68.5#	105.0#	
Material Quantities Are as Follows:							
Brick	.1232	.1848	.1848		.1232	.1848	
Cu. Ft. Mortar	14.2	25.8	21.6		18.6	27.8	

*Fig. given in A.S.H.V.E. "Guide"
**1" fir sheathing, building paper, metal lath and plaster
***1" rigid insulating board sheathing, ⅜" plaster board, ½" plaster

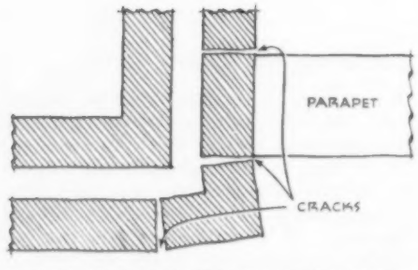
REMARKS: Formula Used:- U = 1/R

Resistance = R, ASHVE "GUIDE" 1940		¾" plaster metal lath	0.23
6" hollow tile	1.57	⅜" plaster board	0.27
4" low density brick	0.80	2" air space	0.91
8" low density brick	1.60	fi 1/1.65	0.61
½" plaster	0.15	fo 1/6.00	0.17

TABLE II. Heat Transmission coefficient "U", for various types of cavity and solid masonry walls.

ing materials, is as good an insulator as 12" solid brick or brick veneer over frame. Normally, the extra cost of furring, lathing, and insulating is not justifiable unless temperature variations are of an extreme nature and fuel costs are high.

Heat transmission coefficients of cavity walls and several standard wall assemblies are indicated in Table II.



CRACKS CAUSED BY THERMAL EXPANSION can be prevented by correct placing of reinforcing rods.

Variants of the cavity wall, called "breathing walls" or some similar name, have been studied here and in Great Britain. The theory is that ventilation at top and bottom of the wall permits free air circulation, equalizes air pressure, and therefore prevents condensation. With this type of construction, however, a great deal of the insulation value of the cavity is lost. Reporting on experiments along this line, the British magazine, *Architectural Design*, in its June 1947 issue says: ". . . if the ventilation is efficiently done . . . the air circulation set up in the cavity is such as to reduce the 'U' value. On balance it is considered desirable to make the cavity as nearly air-tight as ordinary building conditions permit."

Pitfalls

The design and construction of a cavity wall is not something to be entered into lightly. There are pitfalls, not all of which can be covered in an article of this length. For example, adequate provision should be made for thermal expansion of restrained walls in order to prevent fracture of adjacent walls. The introduction of reinforcing rods will do much to prevent cracks caused by thermal changes. Such rods should be installed in the horizontal face joints, keeping ½" from the face to the surface of the rod which must be completely encased in mortar.

The obvious causes of possible local failure have been emphasized. From the viewpoint of preventing water transmission, the problem of keeping the cavity clean and clear probably ranks highest in importance. A clogged cavity obviously negates the function of the air space as an effective water barrier. An ounce of prevention, in the form of a few simple instructions to the mason coupled with adequate inspection, will do much to insure trouble-free dry walls. Study of flashing details and the avoidance of spandrel and column projections into the cavity are items worthy of thoughtful analysis.

Actually, these precautions come down largely to a matter of good, careful construction, together with a full understanding of the principles, the advantages, and the possible dangers in this very useful method of designing and building with masonry.

MANUFACTURERS' LITERATURE

PROGRESSIVE ARCHITECTURE—330 West 42nd Street, New York 18, N. Y.
I should like a copy of each piece of Manufacturers' Literature listed

We request students to send their inquiries directly to the manufacturers.

No.	No.	No.	No.
No.	No.	No.	No.
No.	No.	No.	No.
No.	No.	No.	No.

NAME

POSITION

FIRM

MAILING ADDRESS ☐ HOME ☐ BUSINESS

CITY STATE

8/47

PLEASE PRINT

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

Air and Temperature Control

1-118. *Emerson-Electric Fans for 1947 (Unit X5749)*, Emerson-Electric Mfg. Co. Reviewed July.

★ **1-123.** *Thermolier, Catalog 6-E*, 31-p. illus. catalog outlining characteristics of unit heating. Construction and operating data for Thermoliers; capacities, dimensions, and weights. Automatic controls, suspension methods, wiring diagrams, and piping connections Grinnell Co., Inc.

1-119. *Night Cooling of Industrial Buildings (Form 1404W)*, Ilg Electric Ventilating Co. Reviewed July.

1-120. *Enjoy Better Living With Radiant Sunny Warmth*, Institute of Boiler and Radiator Mfrs. Reviewed July.

★ **1-124.** *The National Fitters Guide, (Form 488)*, (4x8¾) folder on a simple and accurate method of figuring radiation, and selecting boilers for steam and hot water heating. Heat Loss Calculation sheet, Btu Heat Loss Table, examples of calculating typical problems. The National Radiator Co.

1-121. *How To Live In June All Winter (Bul. S-380-A)*, 8-p. illus. booklet on convector-radiators that can be used with any steam or hot water heat system. Advantages, construction, and installation features. The Trane Co.

1-122. *Tri-Flex Grilles and Registers (Bul. 47TF), AIA 30-J*, Tuttle & Bailey, Inc. Reviewed July.

1-125. *USAIRCO Water Coils (Bul. 67), AIA 30-E*, 11-p. illus. booklet on coils for cooling and heating with water. Technical data on selection; physical data; tables for determining mean temperature differences and air friction. U. S. Air Conditioning Corp.

Doors and Windows

4-98. *Storm Panels and Screens (Bul. 2005)*, 14-p. illus. booklet on an all-weather, all-aluminum combination storm panel and screen. Has a self-storing feature eliminating necessity of removing and storing each season. Ceco Steel Products Corp.

★ **4-99.** *Clark Over Head Doors*, 4-p. illus. folder on steel-reinforced over head doors featuring unusually thin metal muntins, and no exposed hardware. Types available. Clark Door Co., Inc.

4-95. *Aluminum Windows of Alcoa Aluminum*, Cupples Products Corp. Reviewed July.

4-96. *Something New in Windows*, Hines-Frederick Corp., Inc. Reviewed July.

4-97. *Hollow Metal Doors, Frames and Trims*, 4-p. illus. pamphlet on typical door and elevator details, and typical frame details. Specifications for hollow metal work. Trussbilt, Div. of Siems Bros., Inc.

★ **4-100.** *Venetian Screen*, 4-p. illus. (4x9) folder on a window screening stamped from solid, continuous sheet metal; has 18 tiny metal slots per inch reflecting sun's glare, keeps insects out, and provides good ventilation and visibility. Sample on back of folder. Warp Bros.

Electrical Equipment and Lighting

5-85. *Now for Smaller Homes*, 4-p. illus. booklet on a new MO-4 four-pole thermal-magnetic trip multi-breaker for small houses, stores, farms, apartments, etc. Construction and operating details. Cutler-Hammer, Inc.

5-86. *Surface-Attached Holoflux*, 4-p. illus. pamphlet on a lighting unit equipped with curved Controlens which reduces glare; may be installed as single fixture or in continuous rows. Holophane Co., Inc.

5-80. *Leader Modern Lighting*, Leader Electric Mfg. Corp. Reviewed July.

5-81. *A Miracle of Light (Form 107)*, Lustra Corp. of America. Reviewed July.

5-87. *Are You Going to Build, Modernize, or Repair? (Form 2522)*, 22-p. illus. (5x7½) booklet on wiring plans and outlets needed in a house. Explains number needed for each room. Checklist of needs. Pass & Seymour, Inc.

5-82. *A Reference Manual on Electric Home Appliances, Reference Handbook No. 1, 1946 Edition*, Westinghouse Electric Corp. Reviewed July.

Two booklets from Westinghouse Electric Corp. Reviewed July:
5-83. *Farmstead Wiring (B-3874)*, (25 cents per copy—make check or money order payable to Westinghouse Electric Corp.).

5-84. *Putting Electricity to Work On Your Farm (B-3524)*.

★ **5-88.** *Modern Electric Household Refrigeration and Home Freezing, Reference Handbook No. 3*, 29-p. illus. reference manual on reasons for refrigeration and home freezing, how they are used, operated, and maintained. Points on space for storing frozen foods, essential points of construction, and systems employed. Definitions of refrigerator terms. Westinghouse Electric Corp.

Finishers and Protectors

★ **6-99.** *Magnesium Anodes for Cathodic Protection (Form DM-CP1)*, 13-p. illus. booklet on the use of magnesium in the form of expendable anodes to stop corrosion of underground and underwater structures. How applied, where, how many, and what kind of magnesium anode should be used. The Dow Chemical Co., Magnesium Div.

6-100. *Suggestions From An Interior Decorator (F-85)*, 23-p. illus. consumer (11¼x8½) booklet giving color schemes and decorator tricks for painting the interior of a house. National Chemical & Mfg. Co.

6-101. *Protexol Fireproofing, AIA 19: A:33 (Circular 108)*, 21-p. illus. pamphlet on Protexol Fireproofing engineered for wood construction. Advantages; suggestions for selecting proper treatment and specifications. Protexol Corp.

6-97. *Prufcoat Protective Coatings*, Prufcoat Laboratories, Inc. Reviewed July.

6-98. *Tamms Agraseal*, Tamms Silica Co. Reviewed July.

Insulation (Thermal, Acoustic)

9-67. *Acoustical Units and Plaster*, American Acoustics, Inc. Reviewed July.

9-69. *Ferro-Therm Steel Insulation*, 14-p. illus. (4¼x10) booklet on use of steel reflective insulation as a barrier for resisting the penetration of radiant heat. Stapled in place it is also fire-, insect-, and termite-resistant. Installation details, data, and specifications. American Flange & Mfg. Co., Inc.

9-70. *Styrofoam (Form PL-51)*, 16-p. illus. booklet giving technical data on the properties of Styrofoam (foamed plastic) as a low-temperature insulation material. Applications, characteristics, physical and thermal properties. The Dow Chemical Co.

MANUFACTURERS' LITERATURE

9-68. *Building Insulation (A-129)*, The Eagle-Picher Co., Insulation Div. Reviewed July.

9-71. *P. C. Foamglas Insulation for Roofs (G423)*, 11-p. illus. booklet on Foamglas insulation for use on flat-deck roofs. Application; charts for computing heat transmission; installation procedure and specifications. Pittsburgh Corning Corp.

Load-Bearing Structures

12-121. *Arketex for Modern Homes*, 4-p. illus. folder on ceramic glazed structural tile for both interior and exterior walls. Suggested applications, sizes, colors, and finishes. Arketex Ceramic Corp.

12-116. *Facts You Should Know About Prefabricated Houses*, Better Business Bureau, Educational Div. Reviewed July.

★ **12-122.** *Build the Thermos Wall Way*, 6-p. illus. pamphlet on construction of hollow concrete walls by means of portable forms of aluminum alloy. Construction data, procedure, and details. Prices. Concrete Thermos Wall Co. of America.

12-123. *Fletcher Granite, AIA 8-B-3*, 4-p. illus. folder on granite available for houses, terraces, walks, curbing, and streets. Use, grade, stock, color, finish, and size of types available. Specifications. H. E. Fletcher Co.

Two booklets from Irvington Form & Tank Corp. Reviewed July:
12-117. *Atlas Labor Saving Speed Floor Forms.*
12-118. *Atlas Labor Saving Speed Forms for Walls and Slabs.*

12-124. *Modern Developments in Reinforced Concrete, No. 18*, 19-p. illus. booklet on design of reinforced concrete beams; loading tables and tables of integrals by which coefficients were computed. Portland Cement Assn.

12-119. *Rigidized Metals (Bul. 447)*, Rigid-Tex Corp. Reviewed July.

12-120. *Rilco Glued Laminated Wood Arches, AIA 19-B-3*, Rilco Laminated Products, Inc. Reviewed July.

12-125. *Rilco Laminated Wood Rafters and Arches for Every Type of Farm Building (Cat. G)*, 15-p. illus. booklet on laminated wood rafters and arches for barns and smaller farm buildings. Details of barn framing, corn cribs, and granaries; also procedure of raising rafters, and types needed for various buildings. Rilco Laminated Products, Inc.

Materials of Installation

13-56. *Casco Gluing Chart*, describing the required properties of glues for various jobs and listing glues recommended for each job. Casein Co. of America, Div. of The Borden Co.

13-55. *Spartan Adhesives*, Sparta Ceramic Co. Reviewed July.

13-57. *Tremglaze Mastic Glazing Compound, AIA 26-B-2*, 12-p. illus. booklet on the use of Tremglaze vs. putty. Installation data, advantages. colors available. Specifications. The Tremco Mfg. Co.

Non-Load-Bearing Structures

14-34. *Insulux Glass Block, AIA 10-F, 1947 Catalog*, Owens-Illinois Glass Co., Insulux Products Div. Reviewed July.

14-38. *Ideas for Brighter Homes With Insulux Glass Blocks (1B67)*, 15-p. illus. booklet on design and use of glass block as a masonry wall that transmits light. Construction details, applications in various rooms, typical installation details. Characteristics, design, and sizes of glass block available. Owens-Illinois Glass Co., Insulux Products Div.

14-35. *Glass Blocks (G-41171)*, Pittsburgh Corning Corp. Reviewed July.

14-39. *Carrara, The Modern Structural Glass of Infinite Possibilities (G-6554)*, 20-p. illus. booklet on Carrara for houses, including bathtub wainscot and kitchen panels. Also panels for store fronts, corridors, walls; in labs, hospitals, department stores, etc. Recommendations and specifications. Pittsburgh Plate Glass Co.

14-36. *Rambusch Block de Cor*, Rambusch Craftsmen. Reviewed July.

14-37. *Q-Panels, AIA 13-1 (Q-22)*, H. H. Robertson Co. Reviewed July.

Sanitary Equipment, Water Supply & Drainage

19-143. *Waste King*, 6-p. illus. folder (3½x7) on incinerators for residences in both wall and floor styles. Advantages, operating data. Incinerator Products Co.

Two booklets, one on an automatic electric storage water heater with thermostat control, available in floor and table models; the other on a water softener in sizes ranging from residential and farm units to industrial installations. Booklets include construction operation, specifications, and roughing-in dimensions. Rheem Mfg. Co., Appliance Div.
19-144. *Automatic Electric Storage Water Heater, Series 60, AIA 29-D-2.*
19-145. *Water Softener, Series 2700, AIA 29-D-32.*

19-132. *Prefabricated Insulated Pipe Units (Form 4626)*, The Ric-Wil Co. Reviewed July.

19-133. *Toilet Compartments and Toilet Room Environments (Cat. 85, 1947 Edition), AIA 35-11-6*, Sanymetal Products Co. Reviewed July.

19-146. *Water Hammer—Its Cause and Cure (Bul. 120)*, 6-p. illus. booklet on the use of sealed air chambers to prevent water hammer in water supply systems. Installation instructions, selector tables for finding right size, and Pressure Flow charts. Wade Mfg. Co.

19-134. *Sizing the Job in Electric Water Heater Sales*, D. W. Whitehead. Reviewed July.

19-135. *Zurn Wall Closet Fittings Supplement No. 46-3, AIA 29C*, J. A. Zurn Mfg. Co., Plumbing Div. Reviewed July.

Specialized Equipment

19-147. *A Message About Confessionals (Bul. 164)*, 4-p. illus. (6x9¼) folder on portable, compact acoustic confessionals. Basic units, typical assembly combinations. Burgess-Manning Co.

19-137. *Rex-Weld*, Chicago Metal Hose Corp. Reviewed July.

19-138. *Kaiser Dishwasher*, Kaiser Fleetwings, Inc. Reviewed July.

19-148. *Sanitation Codes Demand Clean Glasses*, 4-p. illus. (5½x8¾) folder on an electric glass washer and sterilizer for restaurants, hospitals, cafeterias, etc. Advantages, operation, size, and dimensions. The Lofstrand Co.

Two booklets on steel sink cabinets and floor and wall cabinets for modern kitchens. Types available, details, dimensions. Midwest Mfg. Co.:
19-149. *Complete Kitchen-Kraft Steel Kitchens.*
19-150. *Kitchen-Kraft Steel Kitchen Cabinets.*

19-139. *Youngstown Kitchens, AIA 35-C-1*, Mullins Mfg. Corp. Reviewed July.

★ Two booklets giving technical data on use of audio-visual equipment in teaching. Detailed designs and layouts of classrooms, libraries, auditoriums, etc. Data on acoustical treatment, suggested lighting and ventilating details, and furnishing and designing an audio-visual center in schools. Visual-Equipment Mfrs. Council:
19-155. *Designs for Visual Education, Part I.*
19-156. *Designs for Visual Education, Part II.*

Surfacing Materials

12-121. *Arketex for Modern Homes*, Arketex Ceramic Corp. (See No. 12-121 under "Load-Bearing Structures.")

19-151. *Suntile*, 8-p. illus. booklet on color-balanced Suntile for walls, floors, and work surfaces in kitchens, bathrooms, and laundries. Now available in modular shapes and sizes, as well as standard. Size, shape, and use charts; color tables. Cambridge Tile Mfg. Co.

19-152. *Plastic Magnesium Oxychloride Flooring*, 6-p. illus. (4x8) folder. Reprint of a BPF Sheet from *Pencil Points*. Technical data on use of plastic magnesium oxychloride cement for flooring. For installation over wood, concrete, and steel subfloors. List of types available and their properties. The Camp Co.

19-140. *Marlite for Interiors*, Marsh Wall Products, Inc. Reviewed July.

19-141. *What You Should Know About Modern Lathing and Plastering*, National Foundation for Lathing and Plastering, Inc. Reviewed July.

19-142. *Vitrolite Glass Facing (V-126)*, Libbey-Owens-Ford Glass Co. Reviewed July.

★ **19-153.** *Gypsum Plaster Base Coats and Finishes, AIA 21-A-2 (AP-2)*, 13-p. illus. booklet of technical information on gypsum plaster base coats and finishes for building and industry. Types available, application specifications for each. Tables of technical and fire test data. United States Gypsum Co.

19-154. *Zonolite Insulating Concrete Floors, AIA 37-A (Form CA-4)*, 4-p. illus. folder on the installation of Zonolite insulating concrete for floors covering radiant heat pipes, and on and above ground, upper story, and basement floors. Advantages, typical floor construction details, recommendations, and specifications. Universal Zonolite Insulation Co.

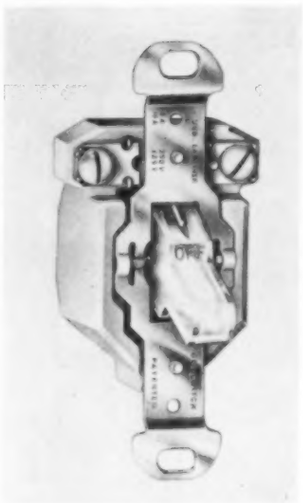
Traffic Equipment

20-40. *Electravator*, Electravator Corp. Reviewed July.

20-41. *Lamson Conveyors (Form 746)*, Lamson Corp. Reviewed July.

★ **20-42.** *Elevator Door Details (Form 667)*, 6-p. illus. folder on types of elevator doors available —single swing and sliding, freight, and dumbwaiter. Data on hatchway safety gates. Details of each, dimensions, and features. Montgomery Elevator Co.

THIS MONTH'S PRODUCTS



Electric wall switch shines when lights are out. Roberts-Glo. Switch Division.

AIR AND TEMPERATURE CONTROL

Air Changer. An air-cooling fan of aluminum for installation in basements, attics, and kitchen floors. Noiselessly draws cool, fresh night air from outdoors when windows are open. Powered by a ball-bearing ½ hp motor, is 36" in size, operates at about 1½c an hour. Unwanted air filtration is eliminated by an automatic louvered aluminum grill. Eagle-Picher Sales Co., American Bldg., Cincinnati 1, Ohio.

Perma-Steel Awnings. All-year-round stainless steel awnings permanently spot welded and trimmed in choice of ten colors. Construction is of tubular strut type; hanger strip is permanently anchored and caulked to the building. Designed for commercial use; available in size increments of 6", length and width; assembled to measure. Perma-Steel Corp., 2025 Fenkell Ave., Detroit, Mich.

Shafco Suspended Unit Heaters. Compact suspended oil-fired unit heaters, single or multiple, for commercial and industrial buildings. Units are automatic and can be operated separately or in multiple installations. Shafco Distributing Corp., 1354 Book Bldg., Detroit 26, Mich.

DOORS AND WINDOWS

Fabrilite. A fire-resistant, vinyl plastic coated fabric being used on Modernfold accordion doors which slide along on overhead tracks. Available in a wide range of colors, standard or custom-made door widths. New Castle Products, New Castle, Ind.

Automatic Safe-T-Lock. A lock with an automatic safety latch that snaps into place, allowing the door to be opened a little way, and snaps back into position when door is closed. Can be released from inside the room; both safety latch and lock may be opened with a key. Automatic Safe-T-Lock Co., 4600 S. Kedzie Ave., Chicago 32, Ill.

ELECTRICAL EQUIPMENT AND LIGHTING

Cutler-Hammer Multi-Breaker. A small, four pole multi-breaker for use in smaller houses as fuseless circuit breaker protection, and for larger installations as a branch circuit load center. Incorporates both thermal overload and magnetic protection. Carries a 50 ampere maximum solid main rating, individual single poles at 15, 20, or 30 amperes. Cutler-Hammer, Inc., 442 N. 12th St., Milwaukee 1, Wis.

Electric Wall Switch. An electric light switch equipped with a neon light in the handle that lights up when overhead lights are out. Available in many colors. Light will last for two years; electric current for the light costs less than 2c a year. Roberts-Glo, Switch Div., 700 Jamaica Ave., Brooklyn 8, N. Y.

Superior Binding Post. A type DF30 multi-purpose electrical connector; five ways of connecting leads, provides complete insulation of post from mounting panels. Current-carrying capacity 30 amperes, can be mounted on any panel up to ¼" thick. The Superior Electric Co., 470 Church St., Bristol, Conn.

FINISHERS AND PROTECTORS

Tuf-Seal. Varnish-type sealer penetrates subsurfaces of wood floors and prevents drying and splintering. For gymnasiums, dance floors, and floors with unusual traffic. Gillespie Varnish Co., Dey St., Jersey City 6, N. J.

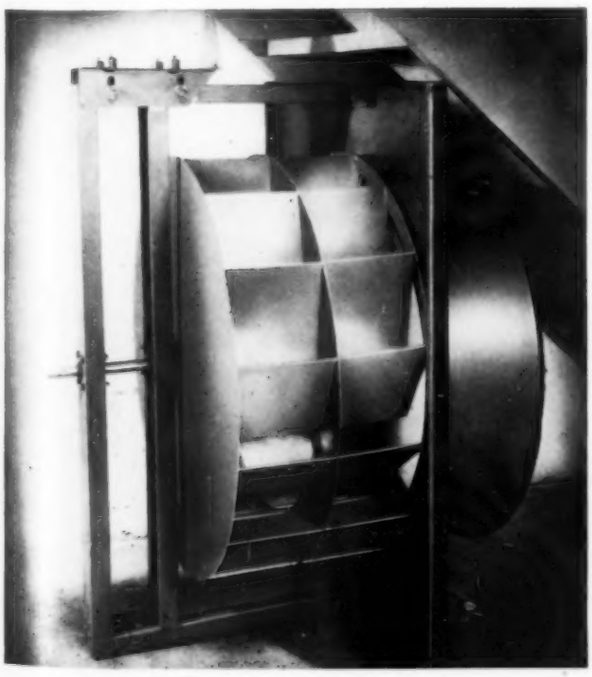
Prufcoat Aluminum. Aluminum paint made with corrosion-proof, synthetic resin vehicle and a special aluminum powder that leafs well. Keeps all moisture and corrosive agents from reaching the surface of the painted article. Prufcoat Laboratories, Inc., 63 Main St., Cambridge, Mass.

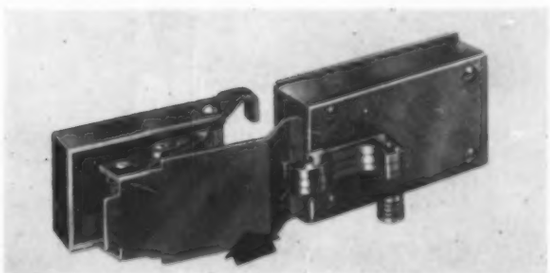
INSULATION

Infra Accordion Insulation. A reflective type insulation of triangular, reflective, non-conductive air cells enclosed in a double layer of thin aluminum foil. Has capacity to emit 1/20th of heat rays; weighs 1 oz per sq ft; 3 cu ft carton, 3½' x 1½' x ½', contains 1,000 sq ft of Infra. Available in 16 and 24" widths. Infra Insulation Corp., 10 Murray St., New York, N. Y.

(Continued over-page)

Air changer manufactured by Eagle-Picher is a noiseless fan for attic or basement installation.





Automatic Safe-T-Lock Co., introduces a safety latch to replace old-fashioned chains.

PRODUCTS

LOAD-BEARING STRUCTURES

Concrete Thermos Wall Forms. Portable form of aluminum alloy, consists of two 5 ft forms, a corner form, and other accessories for making cavity concrete walls. Forms can be adjusted to various thicknesses. Concrete Thermos Wall Co. of America, George Washington Bridge Plaza, Fort Lee, N. J.

Portable Welder. A self-powered arc welder available as a stationary or trailer unit; has a welding service range from 30 to 260 amperes; a heavy-duty, 4-cylinder air-cooled engine of 265 hp, rear mounted; 10 gal. capacity gas tank. Harnishfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis.

SANITARY EQUIPMENT, WATER SUPPLY & DRAINAGE

Aluminum Shower Cabinet. Made of heavy gage lightweight aluminum; composed of five form sections which slide into interlocking flanges providing a watertight fit. Standard glass door can be added. W. R. Ames Co., 150 Hooper St., San Francisco 7, Calif.

Norge Electric Water Heater. Round upright type of electric water heater will be available in five sizes with capacities of 80, 66, 52, 40, and 30 gal. Completely insulated with 5" of glass wool. Borg-Warner Corp., Norge Div., 574 E. Woodbridge St., Detroit 26, Mich.

Heat Wrap Calrod. A heating unit for electric water heating tanks, consists of one, two, or three ribbons of Calrod held tight against surface of tank by stainless steel channels; conducts heat to water and provides maximum delivery of hot water. Galvanized or monel tanks from 15 to 82 gallon size. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.

SPECIALIZED EQUIPMENT

NA-8 Home Freezer. An 8 cu ft chest-type freezer holding 280 lbs of frozen food. Measures 39½" long, 17½" wide, 20" deep. Equipped with four removable wire baskets, one with thermometer attached; two shelves for fast-freezing up to 35 lbs of food; a warning light for temperature increase. Interior of chest lights up automatically when lid is opened. General Electric Co., Appliance Div., 1385 Boston Ave., Bridgeport 2, Conn.

Hyatt Streamliner. A portable diamond saw for tile cutting. Can be operated at 1/5 hp, has self-contained flushing system. Accurate liners to ⅛" may be cut. Hyatt Lapidary Equipment Co., East San Diego, Calif.

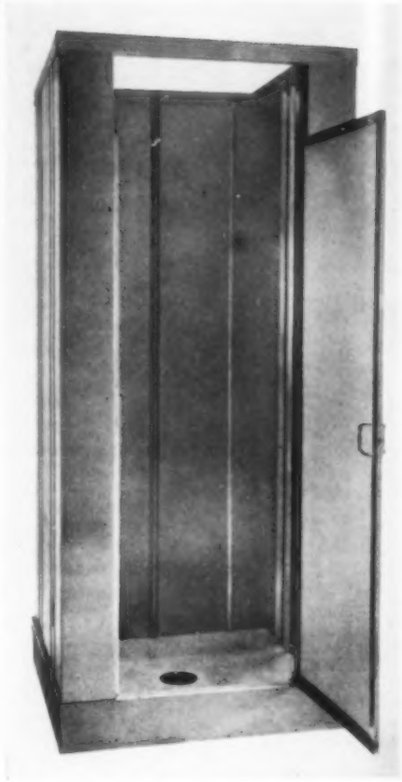
Pantasote. A plastic upholstery material similar to leather; said not to crack, easy to tailor. Available in variety of colors, grainings, and two-tone finishes. The Pantasote Corp. of N. J., 444 Madison Ave., New York 22, N. Y.

Fain Foldinette. A modern cabinet which opens into a complete dining set—a plastic topped, chrome edged 32" x 48" table, and two backed-benches which seat four people. Cabinet closed is 36" x 57" high, can be recessed into 4" standard wall in new construction. Sierra Wood Products, Inc., Pasadena, Calif.

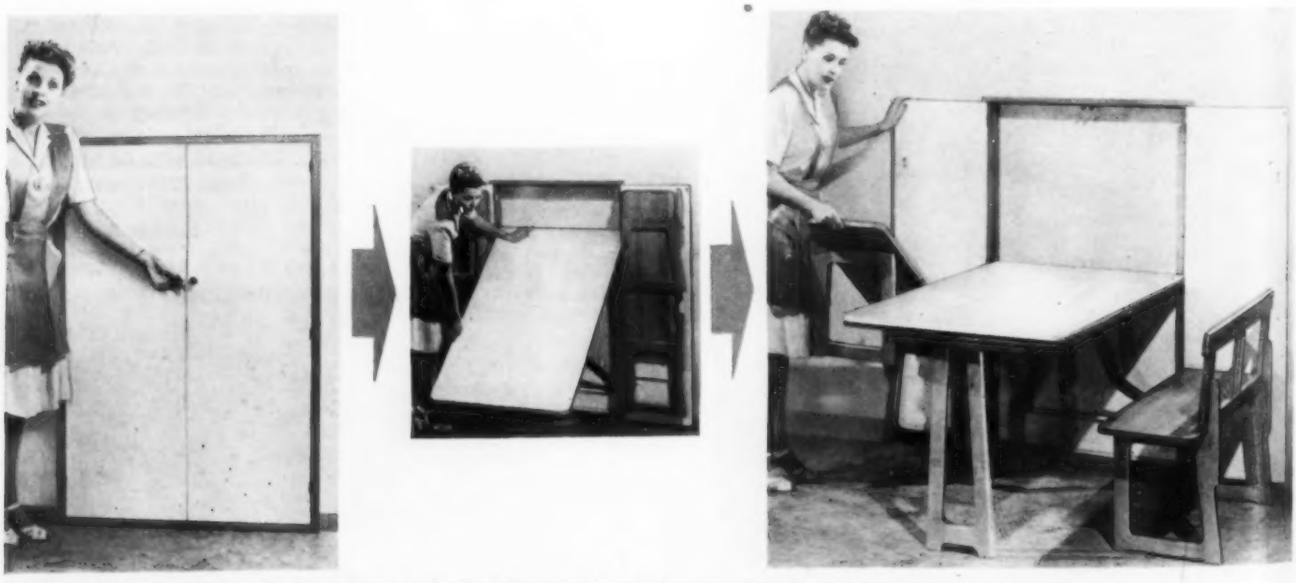
Bilt-In Electric Range. A compact, stainless steel, one-piece cooking unit with a separate standard-size oven that can be built into existing cabinets at any height. Cooking top has three heating units, a 5-qt-deep well cooker. Oven has an automatic temperature control, Telechron Automatic Timer, and Minute Minder. One conduit with three wires provides connection for the cooking unit, the same for the oven. A built-in griddle, extra ovens, and heating units will be available. Thermador Electrical Mfg. Co., S. Riverside Dr., Los Angeles, Calif.

TRAFFIC EQUIPMENT

Car Position Indicator. Lantern-indicator with amber floor numerals which light individually to indicate position of elevator in hoistway; illuminated arrows tell direction car is traveling. A chime sounds whenever either strip lights. Otis Elevator Co., 260 11th Ave., New York 1, N. Y.



Aluminum shower cabinet by W. R. Ames Co., simple in construction, weighing 23 pounds.



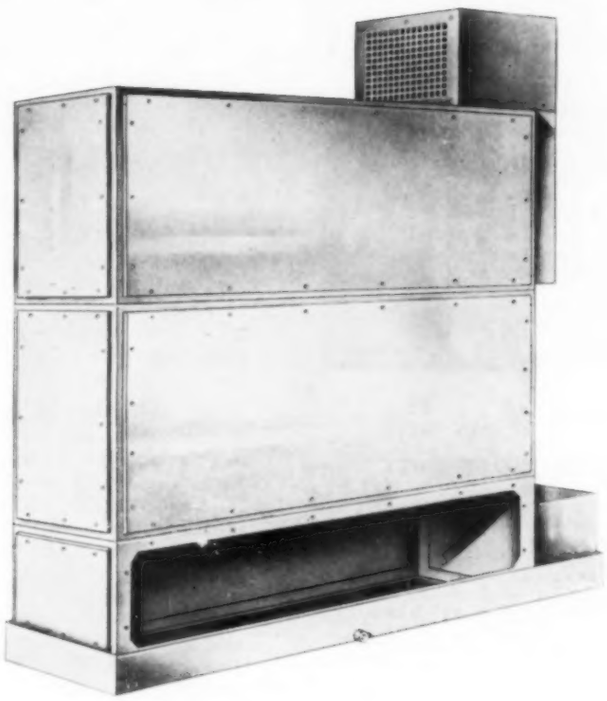
Fain Foldinette is a cabinet which opens out to become dinner table and benches. Manufactured by Sierra Wood Products, Inc.

WORTHINGTON

Air Conditioning and Refrigeration Report

Worthington Pump & Machinery Corporation, Harrison, New Jersey

SAVE 90% WATER COST



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A7-6

WORTHINGTON *Air Conditioning and Refrigeration*

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Typical of many up-to-the-minute firms supplying the nation's food, the Jewell Poultry Company of Gainesville, Ga., makes Worthington refrigeration an important factor in its processing. Above is the main processing room, where 100,000 lbs. of chicken are prepared daily.

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Refrigeration equipment at the Jewell Company. In the right foreground is a Worthington Freon-12 Condensing Unit. In the left rear are three Worthington Vertical Ammonia Compressors. Worthington units of these types are widely used throughout industry.

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REVIEWS

FROM THE TECHNICAL PRESS

JOHN RANNELLS

BUILDING RESEARCH HERE AND ABROAD

THE A.I.A. PROGRAM

The Architect Looks at Research. Bulletin of the American Institute of Architects, *1741 New York Ave., N. W., Washington 6, D. C. Mar. 1947.*

"The newly established Department of Education and Research of the American Institute of Architects takes a broad view of research for the purpose of formulating long-range policies and also a program of immediate objectives in research service to the membership." This sounds very good, but let's see how it is to be developed.

After some rather pompous classification of research under the headings of "Free Fundamental Research," "Objective Research," and "Applied Research," this high endeavor collapses into "horizontal" and "vertical" patterns suggested by "the broad view of research." For example, the examination of a certain detail in all building types "horizontally" is suggested; or a "vertical" analysis of a building type "for a certain activity or function." This is quite a comedown from "a broad view of research for the purpose of formulating long-range policies."

It is not enough to note that "America is research-minded," or "Research has reached a new high in general popularity." A serious approach to research demands the tackling of the pressing problems.

The British have been engaged in this for some time now and their experience is worth noting. "Research now includes general sociological and economic studies aimed at formulating in the first place the needs for building in such a way that the right technical problems are presented and then further research and development for solving those problems with full regard to the human and economic aspects of the building industry." ("The Organization of Building Science Research," reviewed in December 1946 PROGRESSIVE ARCHITECTURE.)

After reviewing the research facilities of the Bureau of Standards, the American Society for Testing Materials, the Underwriters' Laboratories, etc., the Department of Education and Research of the A.I.A. concludes that it is not possible, because of lack of funds, to take an active part in research (testing) work and they resign themselves to being a "composite of listening post and reporting agency, clearing house and coordinating center, and instigator of needed activities."

If only they *would* be the "instigators of needed activities!" Architects are the natural coordinators of work in all fields related to construction and they should be right in the middle of any program which involves planning.

The A.I.A. Department of Education and Research *could* take the lead in coordinating building research. They certainly *should* take the lead in this leaderless field. This would not require funds, but it would require understanding of the problems needing solution and it would require leadership. Unfortunately, this first report of the Department of Education and Research of the A.I.A. indicates that the necessary leadership has not yet appeared.

Building Type Reference Guides: No. I, The Public School Building; No II, The Hospital Building. Bulletin of the American Institute of Architects, *1741 New York Ave., N. W., Washington 6, D. C. Mar. 1947, May 1947.*

These "Guides," first fruits of the newly established Department of Education and Research of the A.I.A., are good but spotty discussions of school

(Continued on page 90)

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REVIEWS

(Continued from page 88)

and hospital planning. Except for the material contained in the attached bibliographies, these articles would not be of much assistance to architects planning either of these types of buildings.

BRITISH EXAMPLES

Scientific Research on Alternative Methods of Construction for Permanent Houses. F. Fitzmaurice, Deputy Chief Scientific Adviser, Ministry of Works. Journal of the Royal Institute of British Architects. *Apr. 1947, May 1947.*

The need for large-scale housing construction in a period of acute shortage of materials and labor made it imperative to adopt scientific methods for development of new types of houses. Based on performance standards established by the various study committees under the Ministry of Works, several prototype houses were constructed and evaluated. Then test runs of about 50 houses each were constructed under close scientific supervision.

Part I of this report covers the general problems—the establishment of adequate standards and the achievement of moderate costs. The effects of mechanization are investigated thoroughly, both factory prefabrication of building components and use of machinery on the site, with special emphasis on the interrelation of design and field assembly and the need for coordination of dimensions and control of dimensions in production of components. "Whether or not a 'module' is to be adopted is a purely secondary consideration."

Part II is a detailed study of the results of test runs of eight house types, all of which show substantial savings over traditional brick wall houses without sacrificing qualities of strength, heat, insulation, soundproofing, etc. It is interesting that one of the wood-framed houses is very economical despite the high cost of wood in England. This is achieved through the use of large prefabricated panels very carefully engineered so that the total amount of wood used is no more than that required in a traditional brick wall house.

Housing and The Architect. J. H. Forshan. Paper read before the Royal Institute of British Architects. Journal of the Royal Institute of British Architects, *66 Portland Place, London W. 1, England. Apr. 1947.*

A general review of public housing in England by the chief architect and housing consultant of the Ministry of Health.

The British have no intention of letting their housing go bad as so much of ours inevitably does. This paper is especially good in its site planning and regional plan aspects. The discussion, so vital a part of all papers read before the R.I.B.A., shows again the breadth of thinking of British architects on problems affecting the future of their towns and cities.

TECHNOLOGY AND DESIGN

What are the Effects of Technological Changes? Douglas Haskell. Address to the 1947 convention of the American Institute of Architects. Journal of the American Institute of Architects, *1741 New York Ave., N. W., Washington 6, D. C. June 1947.*

Mr. Haskell suggests that the importance of technological change is not so much its effect on finished designs as on design *method;* also that the cultural surroundings brought about by technological changes form a background for young designers which is *older* by one generation than the background of the older men whose schooling was based so largely on visual patterns.

But "the current difficulty is that of reconciling technology with esthetics," for industrial technology produced the most effective new materials and structural forms. And yet, while the engineers were working with the essentials of man's physical environment, the architects were still concerning themselves with "pleasing the eye."

In time the architects (enough of them)

(Continued on page 92)

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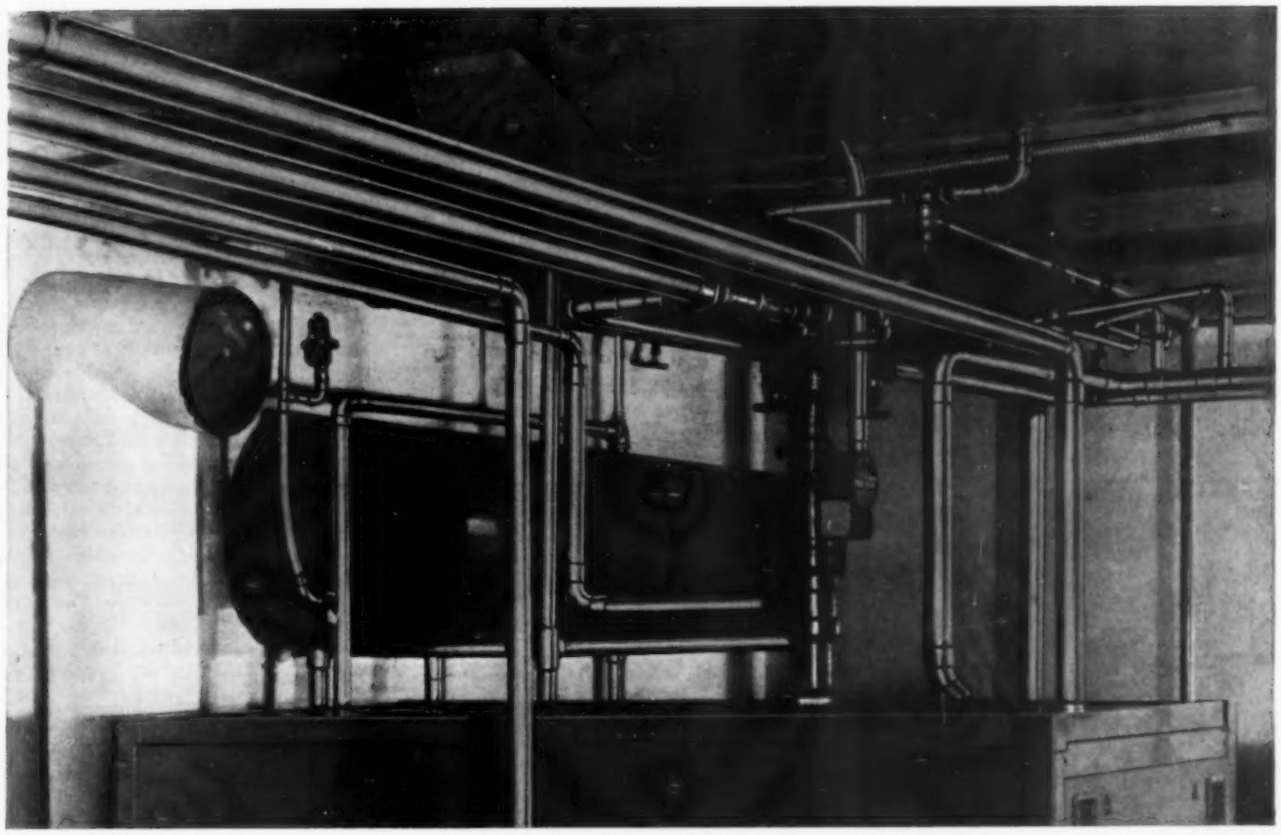

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REVIEWS

(Continued from page 90)

came to realize that the truth and directness of "engineering" forms had superior virtues in themselves and that the virtue lies in the design method. For "architecture is forever a technological art in which technology supplies the working method which art rounds out into a complete expression."

As we take more environmental factors into account (daylighting, artificial lighting, air conditioning, sound control) we need greater simplicity and interchangeability of component parts. Thus, judging a modern design in terms of the drawings alone may give an impression of severity although the living experience in the building may be completely free and pleasant. "The glass wall, for example, is at its best with radiant heat, and the spatial freedom given by the visual transparency is reinforced in a mysterious manner by the exhilaration of an invigorating climate." Modern architecture is taking on more dimensions than a two-dimensional drawing can show and the architects must keep up with their expanding world if they are to continue to be architects. This paper was one of a group by the "younger" men on the subject, "Contemporary Trends in Architecture," which are recorded in the June *Journal of the A.I.A.*

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BOOKS

SPEAKING FRANKLY

Architecture and Art for All Men. *Talbot Hamlin. Columbia University Press, 2960 Broadway, New York, N. Y., 1947. 255 pp., illus. $3.50*

Talbot Hamlin's publisher states on the dust jacket of his new book that Mr. Hamlin combines in his writing the practical experience of a working architect and the theoretical and historical knowledge of a scholar, blended with the sensitivity of the artist. Talbot Hamlin did enjoy a reputation something such as that, as author of *Architecture Through the Ages.* Even allowing for the publisher's typical license to overstate, it is difficult to acknowledge this book as coming from the pen of an author who is capable of analyzing history as Mr. Hamlin has so capably done in *Architecture Through the Ages*, a book which is generally considered by architectural historians as one of the finest short histories of architecture so far published.

Mr. Hamlin's publishers further add that *Architecture for All Men* was largely written aboard a twenty-four foot motor cruiser in the Florida inland waterway. "The subject retains its interest," says Mr. Hamlin, "during days of stormy runs, nights of winter cold, and interludes of warm and pleasant seas. The final pages achieve their form in a country of pelicans and palm trees, of lush and unreal Spanish palaces, and also of much stimulating and very modern architecture."

After reading such sentimental fluff on the jacket and more within this same book, one feels that perhaps there is something to be said for the professor's customary ivory tower as an environment for contemplative literary achievement and critical analysis and synthesis. Mr. Hamlin seems to have lost the necessary critical discernment between the imitated Spanish palaces and the stimulating and very modern architecture, in his environment of pelicans and palm trees.

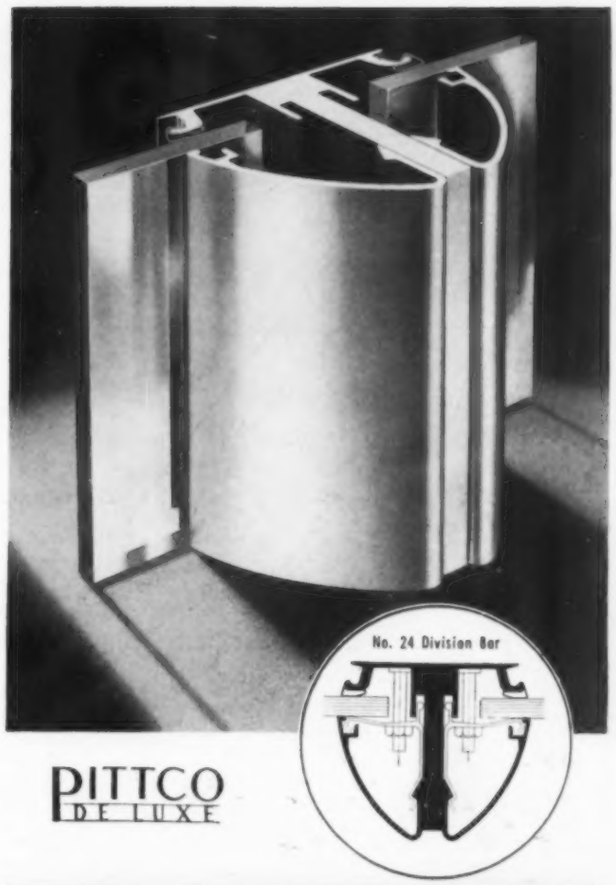
Since *Architecture for All Men* is evidently intended for the layman and not particularly for the architect, critical analysis is needed even more than if the book had been written on a more technical plane for the architect. As it is, the book is contradictory and confusing. It should make clear the meaning of architecture, and by that I mean progressive contemporaneous architecture, if it is to have real value today. Mr. Hamlin condemns eclecticism and discusses it learnedly and conclusively, yet he goes into ecstatic frenzies of praise for many buildings that are eclectic both in concept and execution.

He calls attention to the Nebraska State Capitol almost as many times as he uses

(Continued on page 94)

STURDY CONSTRUCTION

. . . in both lines of Pittco Metal



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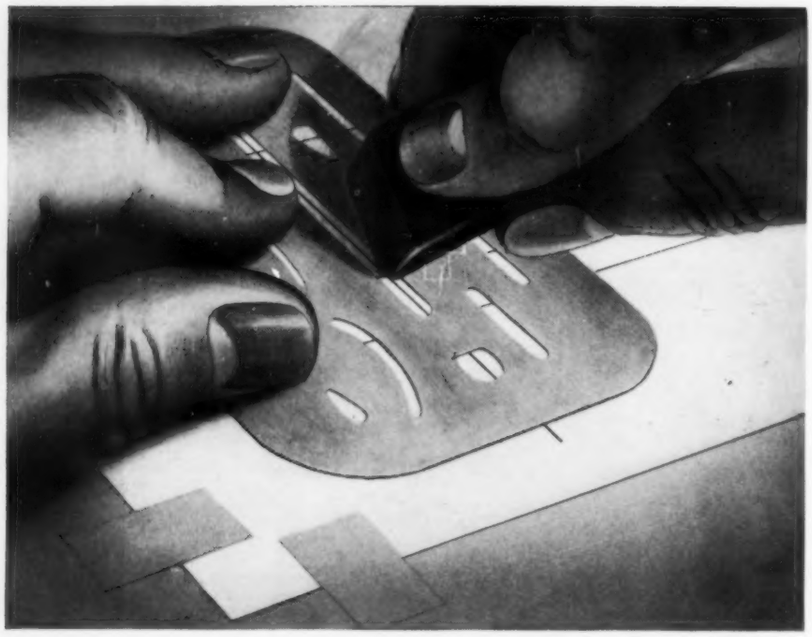

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REVIEWS

(Continued from page 92)

the term, "as it were," and that is pretty often. He believes that the Nebraska State Capitol is the finest government building in America. Without discussing such buildings as the Fresno City Hall in detail in this review, it occurs to me that it might have been more valuable to "all men" (Mr. Hamlin's audience for this book) to call attention to the pathetic plight of government building by a grudging admission that the Nebraska State Capitol is merely one of the best of that group of bad buildings.

Because the author speaks more often of the Nebraska State Capitol than any other building, "all men" could fairly assume that it is his favorite building, and because of that it might be well to briefly analyze it here. Most critics have never considered it more than a brave attempt by the eclectic Goodhue to free himself from the eclecticism of his past and create a building without reference to past styles. Therefore, it is an epoch in Goodhue's life, but not in architecture. The result is a building of exquisite proportions when viewed as a sculptured mass, but, as an expression of its several functions, the materials used, and of the building techniques of the present day, it lacks significance as modern architecture. Goodhue created a fine proportion in his building by composition rules based on a knowledge of the Classical and Medieval periods of which he had been so fond in his earlier life. Perhaps, if he had lived longer, he would have created good architecture, but at his death, even in the Nebraska State Capitol, he had not been able to free himself from the eclectic foibles of his youth.

A study of the plan of the Capitol reveals frightful compromises to symmetry and the major and minor axes. The plan of the tower is forced to gain prominence in the mass, and the position of the elevators, one in each corner, is a compromise to gain monumentality and inexcusable to the modern architect.

He says, ". . . in the Nebraska Capitol the architect has integrated his construction and his effect as closely as he has integrated utility and effect." Such talk is hardly pardonable, even for one spellbound by a twenty-four foot motor cruiser and tropical palms.

Mr. Hamlin's praise for the Columbia University Library and the national Capitol in Washington is hard to understand from a man of his scholarship. He speaks of suddenly changing his pace as he walks by the imposing simplicity of the old Columbia Library. I walked by that building at least twice a day for a year and a half, and I often stopped too, but it was only to shudder at the banality of the monster.

(Continued on page 96)

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Wherever food is served, grease is an ever-present hazard. For when the grease from dishes, pots and pans is washed down the drains, it builds up layer upon layer on the inside of the drain lines until it eventually clogs up the pipes. When that occurs, you just can't "blow out" the grease. Kitchen service must be interrupted and repairs must be made which are costly and inconvenient. *The right time* to guard against this hazard is when specifications are being written . . . and *the right way* is to install exclusive Josam Cascade Grease Interceptors. Their cost is so little compared to the permanent trouble-free service they provide!

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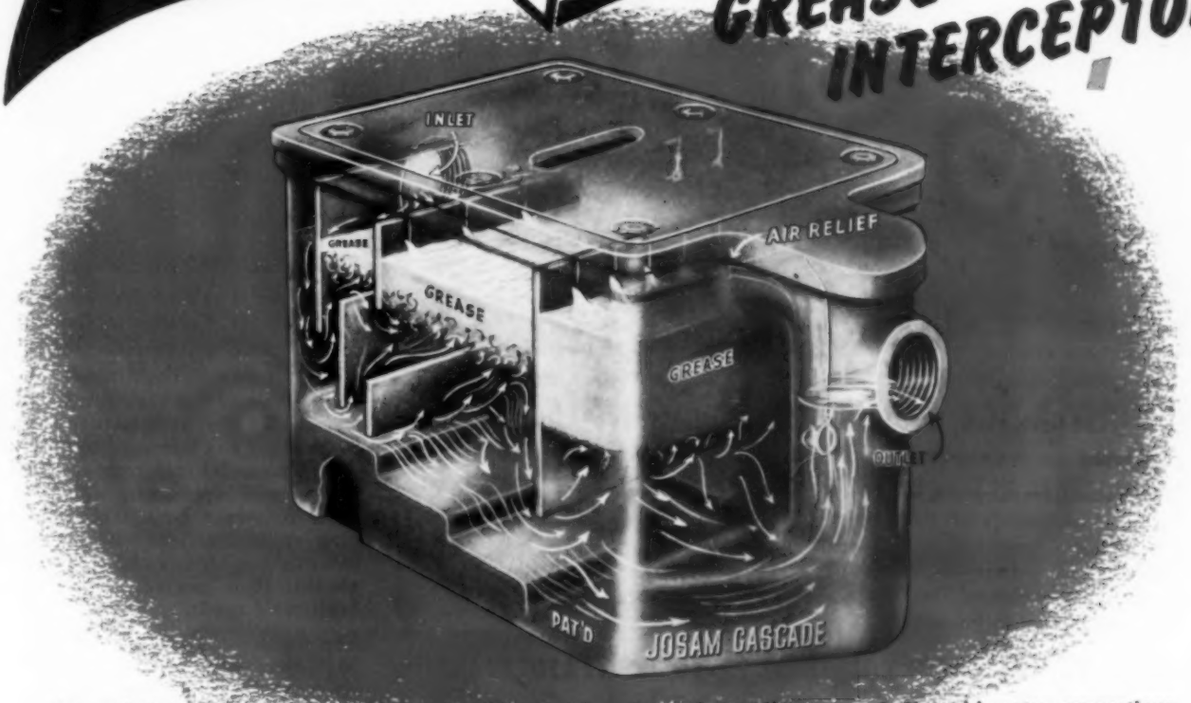

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REVIEWS

(Continued from page 94)

The chapter on "Architecture and the Community" is one of the best in the book, and his plea for a harmonization of all the work in the community would be helpful to a general audience toward a real integration of architecture with modern life. However, the book's illustrative material is uninspiring and poorly selected.

Rather than discuss the work of Delano and Aldrich, Paul Cret, and Frank Lloyd Wright with so much enthusiasm in the same paragraph, time after time, it would have been more helpful to examine each man's work critically. Perhaps the refusal in this book to separate critical opinions of the intellect from sentimental and emotional reactions can be justified in part by the fatherly attitude of the book. That kind of thinking, though, mixed up with all the very good things of the book, does not make a very good book, but a very dull and confusing one, at least when the book is intended as an interpretation of architecture for all men.

HENRY L. KAMPHOEFNER

DRAUGHTSMANSHIP

R. Fraser Reekie. Edward Arnold & Co., London; Longmans, Green & Co., Inc., 55 Fifth Ave., New York, N. Y., 1946. 202 pp., illus. $3.00

This is one of the very few comprehensive books on architectural drafting. The author has managed to get so much useful material into compact form that experienced draftsmen will value this as a reference book while the beginning student will find it crammed with information which he will want to absorb. It is geared primarily to the beginner's needs.

The British conventions are less noticeable than one would expect, although an occasional word has a sprightly look (Automatic Alarum, Earth Point, Lintol). The author must be a very fine teacher, for the text is packed with clear *examples* without burdening the reader with theory. The hundreds of drawings are beautifully clear and open in an unobtrusively individual style that in itself should go far to encourage the student to develop his own abilities.

The book is innocent of an index (how could the publisher dare?) but its chapter organization is clear enough:

I. Equipment (and technique).

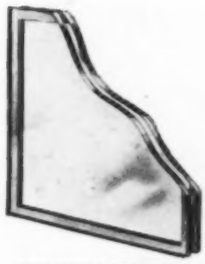
II. Line Drawing (with geometry, orthographic projection auxiliaries, developments).

III. Lettering (based on Roman proportions but not neglecting stencils and mechanical aids).

(Continued on page 98)

How to Install *Thermopane*

REG. U.S. PAT. OFF.



CUTAWAY VIEW OF *THERMOPANE* UNIT

Because *Thermopane* is being used more and more in buildings of all types, you will welcome this step-by-step explanation of *Thermopane* installation. It requires no special skills or special tools. For more complete glazing details than illustrated below, check your Sweet's File or write us.

IN WOOD SASH

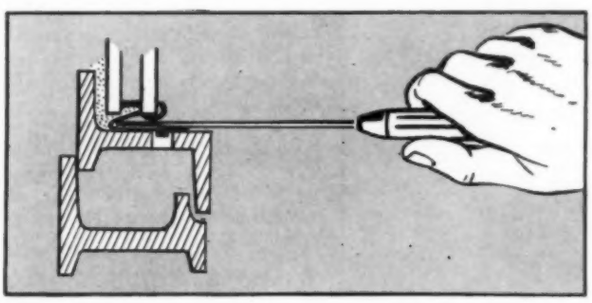
1. Be sure opening is square so unit will not bind. Bed sash with high-grade glazing compound free of corrosive agents before the *Thermopane* is inserted.

2. Place unit on approved setting blocks located in from each corner and centered 1/4 the length of the unit. Press in evenly. Allow equal clearance between edges of glass and sash.

3. Fill voids on all edges with glazing compound to prevent air infiltration and water leakage. Do not use blocks at sides or top of *Thermopane*.

4. Cover perimeter with glazing compound before applying face stops. To avoid point pressure, do not toenail unless sash is rabbeted to receive stop.

IN STEEL SASH



Specially-designed L·O·F phosphor bronze clips are now available from L·O·F Distributors for installation in steel sash.

1. Bed sash with glazing compound.
2. Insert *Thermopane* unit.
3. Put clip on end of putty knife.
4. Insert clip between edge of *Thermopane* unit and steel section until clip lug snaps into hole.
5. Fill all edge voids.
6. Face finish with glazing compound.

STANDARD SIZES

Thermopane is made in more than 60 standard sizes, readily adaptable for new construction or remodeling —for Picture Windows, Window Walls, double hung wood window units and residential steel casements. Your L·O·F Distributor has most of the Picture Window standard sizes in stock. Libbey·Owens·Ford Glass Company, 2787 Nicholas Building, Toledo 3, O.

L O F

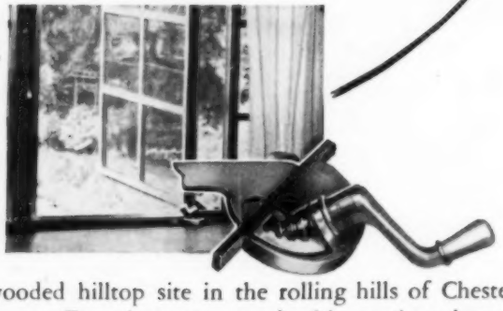
LIBBEY·OWENS·FORD

a Great Name in **GLASS**

ONLY L·O·F MAKES *Thermopane*

Residence of F. Houston McIlvain, Jr. (Architect: Theo. B. White, Philadelphia, Pa. • Builder: Leon Gable, Downingtown, Pa.)

Beauty and the Best ...go hand in hand



On a wooded hilltop site in the rolling hills of Chester County, near Downingtown, stands this gracious home. Small wonder that Getty Casement Window Operators were chosen for its many steel and wood casements. Leading architects have long specified Getty operators for interior trim because of their unique Internal Gear design, sturdy, accurate construction and proven performance over the years. Solid cast bronze and case-hardened cold rolled steel plus the expert knowledge of craftsmen skilled in their trade combine to produce the Getty Casement Operator—built for a lifetime of service.

Getty manufactures operators for all types of casements for both wood and metal. Also a complete line of high-quality accessory hardware for casement windows.

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REVIEWS

(Continued from page 96)

IV. Scale Drawing (various types from maps to details).

V. Conventional Indications and Representations (structural, small scale plans, details, electric, plumbing, etc.) with a valuable check list for the material to be considered in making working drawings.

VI. Tracing and Reproduction of drawings.

VII. Projections (Isometric, Oblique, Perspective). The general perspective method is very clear for so brief a presentation; the "interior" rather confusing.

VIII. Rendering (including quite a comprehensive coverage of shades and shadows and the essentials of various techniques).

IX. Freehand Sketches (just the bare bones of technique).

JOHN RANNELLS

PILLAR TO POST. HOMES SWEET HOMES.

Osbert Lancaster. Transatlantic Arts, Inc., Forest Hills, N. Y., 1947. 80 pp.; 78 pp.; illus. by the author. $2.25 each

Weighty and learned textbooks may come and go, but *Pillar to Post* and *Homes Sweet Homes* would seem to go on forever. Lancaster admirers will be pleased to learn that the former book has just gone into its eighth printing, and the latter into its sixth. Sharp in wit, concise in information, both books still provide one of the quickest and most pleasant ways to review the main stylistic development of English residential design. The transition from Egyptian to "Twentieth-Century Functional," via "Perpendicular," "Kensington Italianate," "Public-House Classic," "Art Nouveau," "Pseudish," and numerous periods with similar Lancasterian classifications, is traced in *Pillar to Post;* while *Homes Sweet Homes* takes the reader inside the houses of these successive periods. The two books should be read one after the other for both the best in learning and enjoyment. The author's own drawings face each page of descriptive text, for ready reference and pleasure.

C.Z.

A.S.H.V.E. GUIDE

1947. American Society of Heating & Ventilating Engineers, 51 Madison Ave., New York, N. Y. 6" x 9", 912 pp. of text, nearly 300 pp. of catalog data, indexes, etc. $6.00

This latest *Guide* is the 25th annual edition. It demonstrates again that the heating and ventilating engineers as a profession keep up to date. The *Guide* is a wonderfully comprehensive text on all of the subjects covered, constantly revised to conform to present practice.

JOHN RANNELLS

Other Reinhold Books

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By J. Rosenfield
308 pages, 9 x 12, illustrated — $10.75

THERMAL INSULATION OF BUILDINGS
By P. D. Close
104 pages, 6 x 9, illustrated — 2.00

City Planning

NEW CITY PATTERNS
By S. E. Sanders and A. J. Rabuck
200 pages, 8½ x 11½, illustrated — 8.00

THE ART OF BUILDING CITIES
By C. Sitte
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HOUSING AND CITIZENSHIP
By Maj. G. H. Gray
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By P. J. Lawson
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By J. Abel and F. Severud — Price Undetermined

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By M. Ketchum, Jr. — Price Undetermined

SEARCH FOR FORM
By E. Saarinen — Price Undetermined

NEW BOOKS BY REINHOLD

UN HEADQUARTERS

By Le Corbusier . . . .

U. N. Headquarters, by Le Corbusier, is in effect a complete report by this world-renowned architect of the entire story of the selection of the United Nations site. Le Corbusier was appointed by his country, France, as an expert in architecture and urbanism attached to the United Nations Headquarters Commission. The latter part of the book, written during the heat of the conflict, so to speak, carries the story right up to the final approval of the Manhattan site offered by Mr. Rockefeller. The whole book is an important historic document as well as an expression of the author's urbanistic philosophy.

It is illustrated in the author's characteristic technique.

80 pages, 7½ x 10 inches, $3.50

YOU WANT TO BUILD A SCHOOL?

By John Lyon Reid and Charles Wesley Bursch . . .

The emphasis of this book is on the group effort of the school planning-building program. Included is a discussion of everyone involved in the planning of a school from the pupil to the architect, even including the taxpayer. There are sections covering the following: Determining the Need for a New School; Master Planning for an Entire District; Preliminary Planning of a School Plant; and How to Use the School. This book is of equal importance to the architect as to the superintendent of schools, school boards, principals, engineers, and all others involved in schoolhouse planning.

About 150 pages, illustrated, 6½ x 9 inches, $3.50

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OBSERVATIONS

THERE ARE SEVERAL INTERESTING POSTSCRIPTS TO AN OBSERVATION OF SOME MONTHS AGO, wherein I told of a pleasant time spent in a beer joint with Tom Pratt of Pittsburgh, Walter Gropius of Harvard and Dessau, and several others. P.S. No. 1: the place was raided just after we left. P.S. No. 2: spies in Pratt's office report that he blanched when he read my story and muttered, "My God, is nothing sacred to that man?"

●

ON THIS PAGE, TOM, NOTHING. IF YOU WANT TO WORSHIP OUR SACRED COWS, THE PROPER PLACE IS THE EDITORIAL PAGE. Back here we let our hair down, pull no punches, respect no persons, thumb our noses, make faces, gibe, flout, fleer, and gleek.

In fact, I wonder why we worry so much about being polite. The French, those masters of diplomacy and suavity, seem now to be surpassing us in use of the direct, disrespectful statement. For instance, *Techniques et Architecture* says, of the U.N. design arrangement: "On avait espere un concours international, mais dans un geste magnanime, J. D. Rockefeller junior a offert le terrain et son architecte, W. Harrison."

●

THERE IS MUCH SAID IN THIS ISSUE ABOUT THE USE OF FORMS FOR ESTHETIC REASONS. Sometimes, of course, an odd form is *needed* for reasons of function. An architect told us recently of a long meeting with a board of directors (his client in the aggregate), with the architect hotly defending a curved office partition. "I *need* that curved wall," he insisted. "It's the only way I can get the space that's required. It's absolutely essential. I *need* it."

Finally, when it was obvious they were getting nowhere, the president of the board turned to the others and said, "Look, gentlemen, let's drop the subject. He *needs* that curved wall."

"I never felt so defeated in my life," said the architect to us. "It was as though I had been insisting that I was Napoleon, and the guard had finally said, "All right, all right, so you're Napoleon."

P.S. The entire board is completely happy with the finished job, especially the curved wall.

●

I RECENTLY VISITED THE UNIVERSITY OF VIRGINIA AND SAW JEFFERSON'S WORK THERE FOR THE FIRST TIME. I was charmed by the total effect of the quadrangle, and intrigued by the naiveté of the detail. By comparison, the later eclectic work on the campus is cold and mechanical. "There have been many attempts to imitate Mr. Jefferson," I was told, "but only one sort of person can do it well—a second year student in the architectural school." Unfortunately, more attempts to imitate Mr. Jefferson appear imminent.

●

I'M AFRAID THAT THE QUESTION, What is a Planner?, HAS BECOME INVOLVED IN THE SORT OF DOUBLE-TALK THAT I WAS COMPLAINING ABOUT SOME MONTHS AGO. Too many people are making a distinction between planning and architecture, some for honest reasons of convictions, some for political purposes, and some in order to rationalize an existing bad situation.

From various sources I hear an argument like the following:

Town planning was led astray by the City Beautiful people. Planning involves sociology, economics, ethnology, geography, geology, politics, and various other technical matters. Traffic studies must be made. The ultimate planner is simply the coordinator. He can be an architect, or he can be a sociologist, or any professional who is one of the town planning team. An architect will be needed to make drawings, of course.

I don't believe it. Planning a city is an extension of the planning process, but the procedure, except for its scale, is no different from planning a house, or a bank, or a hospital. It requires special knowledge of many kinds. It must go through the phases of endless technical studies, but it reaches the ultimate point of physical, three-dimensional expression. I don't care whether the coordinating designer is called an architect or a planner or a commissioner —he *must* have the training of an architect.

Compare the argument quoted above with this comment I heard recently from a hospital administrator:

Hospital planning was led astray by an over-emphasis on "esthetics." Planning a hospital involves a knowledge of medicine, nursing, hospital administration, physical and mental therapies, psychology, and human relations. Careful circulation studies must be made. The ultimate planner is simply the coordinator. He can be an architect, a hospital consultant, an administrator, or any of the hospital planning team. An architect will be needed, of course, but only to make drawings.

You've probably seen hospitals designed by hospital administrators. I've seen several city plans recently, designed by economists. It's a funny thing, but you can't guarantee that either an operating suite or a cross-town traffic artery will be fully satisfactory unless you study materials, construction methods, scale, harmony, and all the other things that go to produce architecture, at the same time that you study costs and circulation and use.

The reason that I'm hot about this is that I've just seen a report of the Committee on Personnel Education and Standards of the American Institute of Planners. I know and respect most of the committee members; the organization is an important one. Yet they say in the report:

". . . . it is well to state specifically that today's planner need have no outstanding genius or talent for 'design' in the esthetic, artistic, or engineering sense, though his planning education must provide him with some training and substantial perception in these fields."

Just as architects let "engineering" go to a new professional group in the nineteenth century, they are letting city planning slip from their grasp. I don't mean to imply that any architect could plan a town. It's too late for that sort of wishful thinking. But I do say that every town planner must be an architect.

I expect to catch hell for that statement, from several sources. For example, the schools of "planning" will object. Okay —a recent graduate of one of the best of those schools just left my office. She is, by all the A.I.P. definitions, a planner, and a good one. She is soon to visit a town where several buildings that we are considering publishing have recently been completed, and I asked her to take a look at them and tell me if they're as good as they sound. "Oh," she said, "I'm not competent to judge *architecture*. I'm a planner."

Maybe I'm wrong, but it sounds to me as though the meanings of words have been twisted around to justify a new offshoot of the design professions. And once again, the architects can't blame anyone but themselves. Is it incompetence, bashfulness, or just plain lethargy? Architects, arise!

Thomas H. Creighton